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County

Borough



of Bolton.

ANNUAL REPORT

OF THE

Medical Officer of Health,

FOR

1928.

BOLTON

JOHN WHEWELL AND SON, 5-11 FLEET STREET,

LONDON.

County

Borough



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ANNUAL REPORT

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FOR

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PUBLIC HEALTH DEPARTMENT,
BOLTON,

June 5th, 1929.

To the Chairman and Members of the Public Health Committee.

LADIES AND GENTLEMEN,

I have the honour to submit my annual report for 1928.

From the health point of view, Bolton can look back on 1928 with considerable satisfaction.

Our infantile mortality rate for 1928 was 64, an extremely satisfactory figure. Our previous lowest infantile mortality rate was 75 in 1927.

Our maternal mortality rate was also very satisfactory. It was 3·08 per thousand live births. The corresponding figure for England and Wales was 4·43.

Our general death-rate, too, is below that of 1927. For 1928 it is 12·8, as compared with 13·8 in 1927. It is my opinion that if we knew the exact figure of Bolton's population it would reduce still further our death-rate.

Our only epidemic sickness in 1928 was a moderate epidemic of scarlet fever, mostly of a mild type, but with some severe cases. Fortunately we have now in scarlet fever antitoxin one of the most potent remedies known to medical science.

One case of smallpox occurred in 1928. The prescribed precautions were taken, and there was no spread of the disease.

Once more I record with pleasure and sincere appreciation the loyal and able co-operation of the whole of the public health staff.

I make special mention of Dr. McKeague, Deputy Medical Officer of Health, Dr. Boullen and Dr. Morison, Assistant Medical Officers of Health, Mr. Hurst, the Borough Analyst, Mr. Holmes, Veterinary Surgeon, and Mr. Herbert Daniels, Chief Clerk.

I am, Ladies and Gentlemen,

Your obedient Servant,

C. W. PAGET MOFFATT,

*Medical Officer of Health
and School Medical Officer.*

Table of Contents.

Section	I.	Natural and Social Conditions	3
	II.	General Provision of Health Services	21
	III.	Sanitary Circumstances	27
	IV.	Housing	39
	V.	Inspection and Supervision of Food	47
	VI.	Prevalence of, and Control over, Infectious Diseases	73
	VII.	Tuberculosis	87
	VIII.	Venereal Diseases	95
	IX.	Maternity and Child Welfare	103
	X.	Miscellaneous	123
	XI.	Appendix	130

COUNTY BOROUGH OF BOLTON.

Public Health Committee.

THE MAYOR, ALD. FRANK CHEADLE, J.P.

Chairman—ALD. E. ASPINALL, J.P.

Vice-Chairman—COUNC. T. HALSTEAD.

Ald. SIR KNOWLES EDGE, J.P.

„ DR. E. MONKS, J.P.

„ P. KNOTT.

„ F. STEEL.

COUNC. J. W. ALLANSON.

„ S. BELLIS.

„ R. BIRCHBY.

„ MRS. A. E. DOWLING.

„ SIR T. E. FLITCROFT, J.P.

COUNC. P. GLEAVES.

„ MRS. E. HAILWOOD.

„ W. A. HINDLEY.

„ J. KEARSLEY, J.P.

„ J. W. MAKANT, M.A.

„ T. PROFIT.

„ B. ROBINSON.

„ J. SIMMS.

„ G. THOMPSON.

Public Health and Medical Inspection Staff.

School Nurses—

1. Miss R. BODDINGTON, 3 years' Cert.
2. Miss J. ROBBINS, 3 years' Cert.
3. Miss D. WALMSLEY, Cert. Midwife and 3 years' Cert.
4. Miss F. G. LEECH, Cert. Midwife and 3 years' Cert.

Health Visitors—

1. Miss S. A. RAMSDEN, Cert. Midwife, Cert. R. San. I.
2. Miss A. MARSH, 3 years' Cert.
3. Miss E. TANNER, 3 years' Cert.
4. Miss A. STEEPLES, Cert. Midwife,
3 years' Cert. (Mat. Hosp.)
5. Miss S. ANDERTON, Cert. Midwife and 3 years' Cert.
6. Mrs. E. BLACKBURN, 3 years' Cert.
7. Miss L. ANDERSON, Cert. Midwife, 3 years' Cert.

Public Health and Medical Inspection Staff—continued.

Artificial Sunlight Operator (part-time)—MISS MARION CHARNOCK,
C.S.M.M.G.

Masseuse (part-time)—MISS LOUIE BRUCKSHAW, C.S.M.M.G.

Matron : Haslam Maternity Home—MISS L. E. EVANS.

Matron : Borough Fever Hospital—MISS E. BATEMAN.

Sanitary Inspectors—1. E. OAKES, Cert. R. San. I.
2. E. SUMNER, Cert. R. San. I. and Cert. for Food.
3. T. ORMROD, Cert. R. San. I.
4. C. J. DAWSON, Cert. R. San. I. and Cert. for Food.
5. T. ISHERWOOD, Cert. R. San. I.
6. C. COOP, Cert. R. San. I. and Cert. for Food.
7. H. BARLOW, Cert. R. San. I.
8. H. WHITAKER, Cert. R. San. I. and Cert. for Food.

Chief Clerk and Sanitary Inspector—
HERBERT DANIELS, Cert. R. San. I.

Veterinary and Chief Meat Inspector—R. P. HOLMES, F.R.C.V.S.

Public Analyst and Bacteriologist—
HARRY HURST, B.Sc. Lond. and Sheff., F.I.C.

Medical Officer for Maternity and Child Welfare (part-time)—
MADGE E. HEYWOOD, M.B., CH. B.

Assistant Medical Officers of Health and Assistant School Medical Officers—
MARY E. BOULLEN, M.B., CH. B., D.P.H. Vict.
ALEXANDER G. MORISON, M.A., M.B., CH. B. Aberd., D.P.H. Lond.

Tuberculosis Officer and Deputy Medical Officer of Health—
JOHN McKEAGUE, L.R.C.P., L.R.C.S. Edin., D.P.H. Dublin.

Medical Officer of Health and School Medical Officer—
C. W. PAGET MOFFATT, M.A. Lond., M.B., B.C., D.P.H. Cantab.
M.R.C.S. Eng., L.R.C.P. Lond.

SECTION I.



Natural and Social Conditions.

SUMMARY OF NATURAL FEATURES

—AND—

VITAL AND MORTAL STATISTICS

1928.

COUNTY BOROUGH OF BOLTON.

Position	Lat. 53° 35' N., Lon. 2° 27' W.
Elevation above sea level	230-ft. to 1450-ft.
Geological Formation: Boulder Clay and Sand over Coal Measures.	
Area in Acres (Land and Inland Water)	15,280
Population (Census 1921)	178,683
Population (Mid-yearly estimated population 1928) ...	181,200
Density	11·8
Inhabited Houses (Census 1921)	41,828
Private Families or Separate Occupiers (Census 1921) ...	42,635
New Houses Certified 1928	479
Estimated No. of Houses in the Borough at 31st December 1928	46,547
Rateable Value at 31st March, 1929	£1,203,004-17-6
Sum represented by a Penny Rate (1928-1929) ...	£4,671-16-7
Births	2,593
Birth-rate	14·3
Deaths	2,323
Death-rate (Crude)	12·8
Death-rate (Registrar General's)	12·7
Average Death-rate (1919-1928)	13·6
Infantile Mortality	64

SUMMARY—Continued.

Neo-natal Death-rate	25·8
Maternal Death-rate	3·08
Epidemic Death-rate (seven chief diseases)...	·33
Diarrhœa & Enteritis (under 2 years), Death-rate per 1,000 Births	6·5
Phthisis Death-rate	·66
Other forms of Tuberculosis, Death-rate	·11
Respiratory Death-rate	2·0
Rainfall (Av. 1887-1928—44·017")	54·044"

107 COUNTY BOROUGHES AND GREAT TOWNS—

Birth-rate	16·9
Death-rate	11·6
Infantile Mortality	70
Diarrhœa and Enteritis (under 2 years), Death-rate per 1,000 Births	9·6

ENGLAND AND WALES—

Birth-rate	16·7
Death-rate	11·7
Infantile Mortality	65
Diarrhœa and Enteritis (under 2 years), Death-rate per 1,000 Births	7·0

VITAL STATISTICS.

Population.

The Registrar General's estimate of the population of Bolton in 1928 is 181,200. This estimate is 2,900 above the estimated population in 1927 which was 178,300.

The excess of births over deaths in Bolton in 1928 was 270. This is called the natural increase of population. When we subtract this from the total increase, namely 2900 we get 2630. The number of persons therefore who came from other areas and took up their residence in Bolton in 1928 was 2630. This assumption assumes the correctness of the Registrar General's estimate of the population.

STATISTICS OF LIFE AND DEATH.

Births

Bolton parents gave birth to 2323 children in 1928. This is 113 less than the corresponding figure for 1927.

The birth-rate was 14.3 per thousand inhabitants. The corresponding figure for 1927 was 15.1.

Birth-rates and death-rates are based on the estimated population, a really doubtful quantity.

Of the children born, 1330 were males and 1263 females. 104 were illegitimate.

Death-Rate and Deaths.

Bolton's crude death-rate for 1928 was 12.8. The Registrar General's corrected death-rate was 12.7 per thousand inhabitants. If Bolton's population is greater than the Registrar General's estimate then the death-rate would be lower.

I believe that at the present time the death-rates of different areas are not comparable because of the difficulty of correctly estimating the population.

Infantile Mortality.

The figure which expresses the infantile mortality rate is independent of the accuracy with which the population is estimated.

The infantile mortality figure gives the number of children under 12 months of age who die per thousand live births. This figure can be determined with absolute accuracy and is comparable for all areas.

The infantile mortality rate for Bolton was 75 for 1927, a mortality less by ten than we had ever had before in Bolton.

This year the infantile mortality rate for Bolton is 64, eleven less than 1927.

Of the large towns of Lancashire only one had a lower infantile mortality, Barrow-in-Furness with 61, and one, Warrington, had the same rate as Bolton, namely 64.

The neo-natal death-rate is the death-rate for the first four weeks of life. Bolton's neo-natal death-rate for 1928 was 25·8 as compared with 36·2 in 1927.

The following table shows the causes of deaths under four weeks in 1928.

Causes of Deaths under Four Weeks, 1928.

CAUSES OF DEATH	Under 7 days	7 and under 14 days	14 and under 21 days	21 and under 28 days	Total under 28 days
Icterus Neonatorum	—	—	—	—	—
Convulsions	2	—	1	—	3
Bronchitis	—	—	1	—	1
Pneumonia (all forms)	—	—	—	2	2
Diarrhœa	—	—	—	—	—
Enteritis	—	—	—	1	1
Syphilis	—	—	—	—	—
Suffocation	1	—	—	—	1
Injury at Birth	2	—	1	—	3
Atelectasis	1	—	—	—	1
Congenital Malformations	2	3	3	—	8
Premature Birth	20	6	3	3	32
Atrophy, Debility and Marasmus	7	—	—	2	9
Other Causes	5	1	—	—	6
Totals	40	10	9	8	67

The causes of infant deaths in 1927 and 1928 are as follows :

	1927	1928
Measles	4	6
Whooping Cough	—	3
Erysipelas	1	—
Tuberculous Meningitis	1	3
Meningitis (not tuberculous)	—	4
Convulsions	9	10
Bronchitis	13	8
Pneumonia (all forms)	19	22
Diarrhœa	3	1
Enteritis	15	14
Gastritis	2	—
Syphilis	1	2
Rickets	1	2
Suffocation	4	1
Injury at Birth	4	3
Atelectasis	—	2
Congenital Malformations	20	11
Premature Births	40	36
Atrophy, Debility and Marasmus	36	18
Icterus Neonatorum	4	—
Other Causes	26	21
	<hr/> 203	<hr/> 167

The infantile mortality rate amongst the legitimate children was 63, and amongst the illegitimate 76.

In the following table is given the average infantile mortality for five year periods from 1876 to 1920 and for each year from 1921 to 1928.

Quinquennium.	Average rate.		Year.	Rate.	
1876-1880	...	171	1921	...	96
1881-1885	...	169	1922	...	93
1886-1890	...	173	1923	...	85
1891-1895	...	185	1924	...	92
1896-1900	...	173	1925	...	87
1901-1905	...	157	1926	...	101
1906-1910	...	134	1927	...	75
1911-1915	...	128	1928	...	64
1916-1920	...	100			

Maternal Deaths.

Bolton's maternal mortality rate for 1928 was 3·08, as compared with 4·4 in 1927.

This subject is dealt with more fully in the section on maternity and child welfare.

For purposes of comparison the following table will be found interesting.

Maternal Mortality in Boroughs of Lancashire in 1928.

Bootle	1·7	Warrington	4·4
Bolton	3·1	St. Helens	4·5
Burnley	3·3	Rochdale	4·8
Liverpool	3·4	Wigan	6·1
Blackburn	4·0	Blackpool	6·2
Manchester	4·1	Preston	6·3
Salford	4·2	Oldham	9·0
Barrow-in-Furness ...	4·3	Bury	9·0

The maternal mortality figure is the number of maternal deaths per thousand live births.

DEATHS FROM INFECTIOUS DISEASES.

The seven principal epidemic diseases are:—Smallpox, Scarlet Fever, Diphtheria, Enteric Fever, Measles, Whooping Cough, and Epidemic Diarrhœa (under two years of age). These diseases caused 61 deaths in Bolton in 1928. This is a death-rate of '33 per thousand inhabitants, and this death-rate is known as the zymotic death-rate. Bolton's death-rate from the above diseases for the years 1919-28 is as follows:—

1919	...	'64	1924	...	'47
1920	...	'79	1925	...	'55
1921	...	'62	1926	...	'65
1922	...	'65	1927	...	'31
1923	...	'40	1928	...	'33

The deaths attributed in Bolton to the various epidemic diseases are shown in the following table for the years 1921 to 1928.

CAUSES OF DEATH FROM EPIDEMIC DISEASES.

	1921	1922	1923	1924	1925	1926	1927	1928
Smallpox	—	—	—	—	—	—	—	—
Scarlet Fever	7	4	6	1	3	1	—	1
Diphtheria and Memb. Croup ...	21	13	10	6	3	14	10	16
Enteric and Continued Fever ...	3	2	—	6	1	1	4	1
Measles	5	63	4	12	18	16	21	17
Whooping Cough	25	13	11	28	32	37	1	9
Diarrhœa and Enteritis under 2 years of age	52	24	42	33	44	47	20	17
Erysipelas	2	6	4	5	9	6	11	9
Puerperal Sepsis	6	3	3	6	8	5	4	3
Cerebro-spinal Fever	—	—	—	2	1	2	3	4
Encephalitis Lethargica	4	1	—	17	13	14	10	11
Influenza	45	122	94	88	98	68	147	55

Deaths from Tuberculosis.

Bolton's death-rate from tuberculosis of all forms in 1928 was considerably lower than any previously recorded death-rate from tuberculosis in Bolton.

For 1928 this death-rate was '77. The next lowest was '92 in 1926.

The total number of deaths caused by tuberculosis in Bolton in 1928 was 140. Of these, 120 were due to pulmonary tuberculosis and 20 to all other forms of tuberculosis.

Tuberculosis is weakening, and its final defeat is almost in sight.

DEATHS AND DEATH-RATES FROM TUBERCULOSIS IN BOLTON IN PREVIOUS YEARS.

Year	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		Tuberculosis (all forms).	
	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate
1913	154	'83	58	'31	212	1'15
1914	167	'90	54	'29	221	1'19
1915	179	1'03	50	'28	229	1'32
1916	181	1'07	62	'36	243	1'43
1917	189	1'15	62	'37	251	1'53
1918	198	1'23	55	'34	253	1'57
1919	173	'97	37	'20	210	1'18
1920	154	'83	32	'17	186	1'00
1921	161	'88	37	'20	198	1'08
1922	138	'75	40	'21	178	'97
1923	157	'86	47	'25	204	1'11
1924	162	'89	42	'23	204	1'12
1925	151	'83	34	'18	185	1'02
1926	135	'76	29	'16	164	'92
1927	149	'83	33	'18	182	1'02
1928	120	'66	20	'11	140	'77

Deaths from Cancer.

245 deaths certified as due to cancer occurred in Bolton in 1928. This compares with 232 in 1927. An examination of the table given below shows that the number of deaths in Bolton due to cancer has varied very little during the past five years.

Is cancer increasing? In last year's report I said "The incidence of cancer has undoubtedly increased and is possibly still increasing." At a later date during 1928 I stated publicly that there was no evidence that cancer was still increasing. This statement was founded on figures not available when I used the words "possibly increasing." I desire to emphasise the words "possibly increasing" as my statements regarding cancer were misrepresented on one occasion.

The view that cancer has reached its high water mark and has ceased to increase is supported by the following figures:—

Annual death-rates from cancer in England and Wales per million persons living.

Year.	Deaths.
1925	1002
1926	999
1927	996

The figures given here are what are called "standardized" figures, that is, they are corrected for age and sex distribution of the population.

Figures not so corrected, what are called "crude" death-rates are entirely misleading when used for purposes of comparison. On this subject the Registrar General writes as follows in his Statistical Review of England and Wales for the year 1926:—

"The comparative figures for cancer show that since 1911-20 the crude rates have increased more than three times as much as the standardized, as a consequence of the rapidly increasing proportion in the population of persons of the higher ages to which cancer is so largely confined. This forms a good illustration of the necessity of standardization in studying cancer mortality at the present time, though indeed, as will be seen later, temporal comparison for any form of mortality specially affecting old people is rapidly becoming meaningless without allowance for their increase in our population."

There is no conclusive evidence that at the present time, when allowance has been made for the increase in the proportion of the population which attains the age at which cancer takes its heaviest toll, and for the yearly increasing accuracy of diagnosis, the incidence of cancer is increasing in this country. In this connexion the following facts deserve attention.

When the incidence of cancer in females for the period 1901-1910 is compared with the incidence for the period 1911-1920 it is found that there is no increase in growths in accessible sites. The increase, which is not great, is entirely confined to growths in inaccessible sites. We are justified in concluding that the increase is merely apparent and is due to improved diagnosis.

Where facilities for diagnosis are most available, there mortality from cancer is greatest. Again we are justified in concluding that the increase is only apparent, and is due to more accurate diagnosis.

In conclusion I repeat what I have said on previous occasions: Whether cancer is increasing or not, its incidence is so great as to justify every possible measure which holds out any reasonable hope of abating its ravages.

The following table gives the number of deaths and the death-rate per thousand inhabitants from cancer from 1901 to 1928. For purposes of comparison the death-rate for tuberculosis is given for the same years. All these death-rates are crude death-rates and are therefore not comparable for the various years. When we see that in 1928 there were 245 cancer deaths as against 203 in 1920 the figures do not necessarily prove any real increase in the cancer death-rate. If we knew the age and sex distribution of Bolton population in these two years it might turn that for each age group the cancer death-rate was higher in 1920 than in 1928.

It will be noticed in the table how greatly the number of cancer deaths in males has increased from 1901 to 1928. These figures do not prove any real increase in cancer in males, although there may be an increase. Cancer in males is, to a much greater extent than in females, in inaccessible sites where its diagnosis is very much more difficult than that of cancer growths in accessible sites. The greater portion of the apparent increase in males is undoubtedly due to more accurate diagnosis.

Deaths from Cancer in Bolton in the years 1901-1928.

Year.	No. of deaths.			Total.	Cancer Death-rate.	Pulmonary Tuberculosis Death-rate.				
	Males.	Females.								
1901	...	26	...	71	...	97	...	·57	...	1·69
1902	...	51	...	73	...	124	...	·73	...	1·49
1903	...	32	...	72	...	104	...	·60	...	1·27
1904	...	45	...	88	...	133	...	·77	...	1·28
1905	...	57	...	76	...	133	...	·76	...	1·20
1906	...	40	...	74	...	114	...	·65	...	1·15
1907	...	45	...	75	...	120	...	·68	...	1·05
1908	...	53	...	69	...	122	...	·68	...	1·21
1909	...	60	...	84	...	144	...	·80	...	1·20
1910	...	58	...	92	...	150	...	·83	...	1·08
1911	...	67	...	84	...	151	...	·83	...	1·03

DEATHS FROM CANCER.—*continued.*

Year.	No. of deaths.		Total.	Cancer Death-rate.	Pulmonary Tuberculosis. Death-rate.
	Males.	Females.			
1912	80	88	168	'92	'99
1913	72	110	182	'98	'83
1914	77	96	173	'93	'90
1915	78	103	181	1'04	1'03
1916	60	100	160	'94	1'07
1917	73	93	166	1'01	1'15
1918	85	102	187	1'16	1'23
1919	72	104	176	'99	'97
1920	96	107	203	1'10	'83
1921	86	128	214	1'17	'88
1922	88	104	192	1'05	'75
1923	101	113	214	1'17	'86
1924	123	121	244	1'34	'98
1925	108	132	240	1'33	'82
1926	109	127	236	1'33	'76
1927	116	116	232	1'30	'83
1928	119	126	245	1'35	'66

The following table shows the age and sex distribution of all persons who were certified as having died of cancer in Bolton in 1928. The table shows also the localization of the disease

DEATHS FROM CANCER, 1928.

Age and Sex Distribution, and Localization of Disease.

Lesion	Sex		AGE																		
	M.	F.	0 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85		
Buccal Cavity	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Jaw ...																					
Maxilla ...	2	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
Mouth ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Palate ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...		
Tongue ...	5	...	...	...	...	...	...	...	...	...	...	...	...	1	1	3	...	...	...
Tonsil ...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Total Buccal Cavity ...	12	...	...	...	...	...	...	...	...	...	...	...	1	3	1	5	1	1	...		
Stomach, Liver, etc.	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Fauces ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Gall Bladder ...	2	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
Liver ...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	1		
Esophagus ...	10	...	...	...	...	...	...	...	...	...	...	...	2	...	3	4	1	...	...
Pharynx ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Pylorus ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1		
Stomach ...	29	...	...	...	...	...	1	...	...	...	2	2	7	3	7	3	4	...	...
Total Stomach, Liver, etc. ...	50	...	...	...	...	...	1	...	...	...	2	6	8	10	13	4	4	2	...		
Peritoneum, Intestines, and Rectum	2	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Cæcum ...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Colon ...	17	...	...	...	...	...	...	...	1	...	...	3	3	3	3	2	1	1	...		
Intestines ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Mesentery ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Rectum ...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	1	...	...
Total Peritoneum, Intestines and Rectum ...	27	...	...	...	...	...	...	...	1	...	...	3	4	5	6	3	1	4	...		
	...	20	...	...	...	...	...	...	...	2	...	5	5	1	5	1	...	1	...		

DEATHS FROM CANCER, 1928.—Cont.

Lesion	Sex		AGE																	
			0 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards
	M.	F.																		
Female Genital Organs																				
Ovary	8	...	...	...	...	...	...	...	...	...	1	3	3	...	...	1	...	...	...
Uterus	26	...	...	...	...	...	1	2	2	3	3	5	1	3	1	4	...	...	1
Total Female Genital Organs...	...	34	...	...	...	...	...	1	2	2	3	4	8	4	3	1	5	...	...	1
Skin	20	...	...	...	...	...	...	...	...	1	2	4	7	2	4	...	...	...	...
Face	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Penis	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Skin	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Total Skin	3	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...
Other Organs	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Bladder	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Kidney	2	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Larynx	9	...	...	...	...	...	...	...	...	...	...	2	...	1	2	3	...	1	...
Lung	2	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...
Stomach	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Mediastinum	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Chest Cavity	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Orbit	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pancreas	6	...	...	...	...	...	...	...	...	...	...	...	...	4	...	2	...	...	...
Prostate	4	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...
Thyroid	6	...	...	...	...	...	...	...	...	...	...	1	1	1	3	...	...	...	...
High	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Throat	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Hyoid	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Total Other Organs	27	...	...	...	...	...	...	...	...	...	1	5	3	7	5	3	2	1	...
Males	12	1	...	...	...	...	...	...	...	...	2	2	3	2	1	1	...	...	...
Females	119	...	...	...	...	...	1	...	1	...	3	16	18	23	29	13	8	7	...
TOTAL both sexes	126	1	...	...	...	...	1	2	3	6	11	23	25	13	15	16	6	3	1
TOTAL both sexes	245	1	...	...	...	...	2	2	4	6	14	39	43	36	44	29	14	10	1

SUMMARY OF THE PRINCIPAL CAUSES OF DEATH, 1928.

GENERAL DISEASES.						No. of Deaths.	Per cent. of Total Deaths.
Measles...	...	...	...	...	...	17	*73
Diphtheria	...	...	...	..	...	16	*68
Influenza	...	...	...	...	...	55	2'36
Erysipelas	...	...	...	...	...	9	*38
Encephalitis Lethargica	...	...	...	...	...	11	*47
Pulmonary Tuberculosis	...	...	...	...	...	120	5'16
Other Forms of Tuberculosis	...	...	...	...	...	20	*86
Cancer ...	...	...	...	...	...	245	10'54
Rheumatic Fever	...	...	...	...	...	28	1'20
Chronic Rheumatism, Osteo-arthritis, Gout	...	...	...	...	...	14	*60
Diabetes	...	...	...	...	...	25	1'07
Anæmia, Chlorosis	...	...	...	...	...	21	*90
Exophthalmic Goitre ...	...	...	...	...	...	9	*38
Other General Diseases	...	...	...	...	...	40	1'72
NERVOUS SYSTEM.							
Meningitis	...	...	...	...	...	10	*43
Cerebral Hæmorrhage, Apoplexy, etc.	...	...	...	...	...	126	5'42
General Paralysis of the Insane	...	...	...	...	...	9	*38
Convulsions (non-puerperal) ...	...	...	...	...	...	13	*55
Other Nervous	...	...	...	...	...	47	2'02
CIRCULATORY SYSTEM.							
Heart Diseases	...	...	...	...	...	314	13'51
Diseases of the Arteries	...	...	...	...	...	211	9'08
Other Circulatory	...	...	...	...	...	7	*30
RESPIRATORY SYSTEM.							
Bronchitis	...	...	...	...	...	198	8'52
Pneumonia (all forms)	...	...	...	...	...	157	6'75
Asthma	...	...	...	...	...	9	*38
Other Respiratory	...	...	...	...	...	12	*51

DIGESTIVE SYSTEM.

Tonsillitis, etc....	...	...	...	...	9	·38
Ulcer of the Stomach or Duodenum	...				15	·64
Diarrhœa and Enteritis	...	...	...	...	29	1·24
Appendicitis and Typhlitis	...	...	...	...	17	·73
Hernia, Intestinal Obstruction	...	...	...	...	29	1·24
Cirrhosis of the Liver...	...	...	...	...	11	·47
Other Digestive	...	...	...	...	31	1·33

GENITO-URINARY SYSTEM.

Acute Nephritis	...	...	...	...	7	·30
Chronic Bright's Disease	...	...	...	...	76	3·27
Diseases of the Prostate	16	·68
Other Genito-urinary...	16	·68

MALFORMATIONS	11	·47
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DISEASES OF EARLY INFANCY.

Atrophy, Debility, etc.	18	·77
Premature Birth and Injury at Birth	...				39	1·67
Other Diseases of Early Infancy	5	·21

OLD AGE	111	4·77
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EXTERNAL CAUSES...	110	4·73
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MISCELLANEOUS CAUSES	30	1·29
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Vital Statistics of the Chief Lancashire Towns.

The following table has been given in the Bolton report for many years. It is naturally interesting, and indeed, important to know how Bolton stands as to life and death statistics when compared with those towns of Lancashire with which it may fairly be compared.

**Birth-rate, Death-rate and Infantile Mortality in chief
Lancashire manufacturing towns.**

(Figures taken from the Summary of the Registrar-General).
1928.

	Birth-rate	Death-rate.	Infantile Mortality.
England and Wales	16·7	11·7	65
107 County Boroughs and Great Towns, including London ...	16·9	11·6	70
Bootle	20·5	10·4	87
Barrow-in-Furness	16·3	10·8	61
Warrington	19·7	11·1	64
St. Helens... ..	21·3	11·4	97
Blackburn	13·9	12·0	78
Wigan	18·6	12·1	92
Salford	16·8	12·3	96
Preston	15·1	12·4	86
Bolton	14·7	12·7	64
Liverpool	21·9	12·8	92
Manchester	17·2	12·9	90
Burnley	15·1	13·1	79
Bury	13·1	13·2	89
Rochdale	13·7	14·0	78
Oldham	14·5	14·0	83

Of the above 15 towns, Bolton has the fifth lowest birth-rate, the ninth lowest death-rate and next to the lowest infantile mortality-rate.

ENGLAND AND WALES

	1927	1928
Death-rate	12·3	11·7
Infantile Mortality	69	65

107 COUNTY BOROUGHS AND GREAT TOWNS, INCLUDING LONDON.

	1927	1928
Death-rate	12·2	11·6
Infantile Mortality	71	70

Maternal Deaths

These are dealt with in the section entitled Maternity and Child Welfare.

SECTION II.

1. General Provision of Health Services.
2. Local Acts, General Adoptive Acts, Bye-laws & Regulations.

GENERAL PROVISION OF HEALTH SERVICES IN BOLTON.

There was practically no change in the Health Services provided in Bolton in 1928.

In compliance with the request of the Ministry of Health the following brief account of these services is appended.

1.—FEVER.

The Bolton Borough Isolation Hospital is situated at Deane, a part of the area of the County Borough of Bolton. It consists of 4 separate pavilions and 2 administrative buildings. The pavilions contain 100 beds for the treatment of infectious diseases.

2.—SMALLPOX.

The County Borough of Bolton has no Smallpox Hospital of its own. There is an agreement with Salford by which six beds in the Salford Smallpox Hospital at Prestwich are set apart for the use of Bolton patients.

The accommodation provided at this hospital has, up to the present, proved adequate.

It is impossible to have in readiness at all times adequate accommodation for a serious outbreak of smallpox. Should such an outbreak unfortunately occur, I anticipate that we should use our present Isolation Hospital for smallpox cases.

3.—TUBERCULOSIS.

A pavilion for the reception of patients suffering from pulmonary tuberculosis has been erected in the grounds of the Borough Isolation Hospital at Deane. It contains 24 beds: 12 for males and 12 for females. The Borough Isolation Hospital is situate within the area of the County Borough of Bolton. The phthisis pavilion was opened for the reception of patients on the 8th of July, 1914.

4.—MATERNITY.

The Haslam Maternity Home, owned and administered by the Local Authority, is located in a very fine building, presented to the town by the late Mr. J. P. Haslam. The Home has 18 beds. The situation of the Home is extremely pleasant, and it stands in extensive grounds of its own. It was opened on the 1st of December, 1920.

5.—CHILDREN.

There are no hospitals in Bolton specially set apart for children.

OTHER HOSPITALS.

The Bolton Infirmary, the only voluntary general hospital for Bolton and a very populous surrounding district, receives an annual donation of £500 from the Bolton Corporation, but it cannot be said to be a hospital subsidized by the Bolton Corporation.

AMBULANCE FACILITIES.

(a). Two motor ambulances are kept at the Borough Isolation Hospital and are available for all infectious cases.

(b). For non-infectious and accident cases, the County Borough of Bolton has provided three ambulances. These ambulances are available for the moving, within the area of the County Borough of Bolton, of all cases of sickness and accident for the moving of which an ambulance is necessary. A small charge is made if the circumstances of those requiring the use of the ambulance justify such charge.

CLINICS AND TREATMENT CENTRES.

Full particulars of Maternity and Child Welfare Centres, of our Day Nursery, of our Tuberculosis Dispensary, and Treatment Centre for Venereal Diseases will be found in the sections of this report which deal severally with these subjects.

The School Clinic is conducted in a building which was formerly the Thomasson Library. The building is situate in Charles Street and has very suitable accommodation for the work of the clinic. The School Clinic is open as follows:

Monday to Friday, 9 a.m. to 12 noon.

2 p.m. to 4-30 p.m.

Saturday - 9 a.m. to 12 noon.

One of the School Doctors is in attendance at the clinic on Monday and Wednesday afternoons, and on Thursday and Saturday mornings. Treatment is carried out every day both in the morning and afternoon.

PROFESSIONAL NURSING IN THE HOME.

The Bolton Public Health Authority has an arrangement with the Bolton District Nursing Association for the home nursing of certain specified diseases. These diseases are: puerperal pyrexia and puerperal fever, measles, whooping cough, epidemic diarrhoea, and ophthalmia neonatorum. For each visit paid to such cases a fee of 1/6 is paid.

The Bolton District Nursing Association provides nursing in the home for all cases other than those of infectious disease. In the great majority of cases the nursing is given gratuitously, but in cases where the patient's friends are able to pay, a small fee is asked.

MIDWIVES.

No midwives are employed, nor are any subsidized by the Local Authority.

The number of midwives who notified their intention of practising in Bolton in 1928 was 82.

CHEMICAL WORK.

The Local Authority employs a whole-time Chemist and Bacteriologist and has its own laboratory. A full account of his work in 1928 will be found in this report.

2. Legislation in Force.

Local Acts, General Adoptive Acts, Bye-laws and Regulations in Force in Bolton.

LOCAL ACTS.

Bolton Improvement Act, 1854.

Bolton Improvement Act, 1865.

Bolton Corporation Act, 1872.

Bolton Improvement Act, 1877.

Local Government Board's Provisional Orders Confirmation
(Abergavenny Union, &c.) Act, 1879.

Bolton Improvement Act, 1882.

Local Government Board's Provisional Orders Confirmation
(No. 15) Act, 1893.

Bolton Tramways and Improvement Act, 1897.

Bolton Corporation Act, 1901.

Bolton Corporation Act, 1905.

Bolton Corporation Act, 1922.

Bolton Corporation Act, 1925.

GENERAL ADOPTIVE ACTS.

Part III.—Public Health Acts Amendment Act, 1890.
(Adopted—6th May, 1891).

Part IV.—Public Health Acts Amendment Act, 1890.
(Adopted—6th July, 1910).

BYE-LAWS AND REGULATIONS.

DATE MADE.

Slaughter-houses	13th Feb., 1867.
Common Lodging-houses	2nd Feb., 1898.
Houses Let-in-Lodgings	2nd Feb., 1898.
Dairies, Cowsheds and Milkshops ...	5th July, 1899.
Management, etc., of High Street Baths	4th Feb., 1903.
Means of Escape in Case of Fire ...	10th Sept., 1908.
Tents, Vans, Sheds and Similar Structures	21st Jan., 1926.

SECTION III.



Sanitary Circumstances.

WATER.

The Bolton Corporation has now become the owner of the whole of the gathering grounds to their reservoirs utilised for domestic supply.

The area of the estate held by the Corporation for Waterworks purposes amounts to 8,177 acres.

All but 5 of the farms situate on this land have now been evacuated, and arrangements have been made to deal with these five within the next few years.

Closet Accommodation.

On the 31st of December, 1927 the closet accommodation of Bolton was as follows :—

Fresh-water closets ...	...	...	...	...	24,981
Waste-water closets ..	...	...	...	...	15,083
Pail closets ...	...	...	...	...	4,418
Privy Middens ...	...	...	...	...	2,410

During 1928 the number of privy middens was reduced by 562, the number of pail closets by 1,594, fresh-water closets being provided in replacement.

At the close of 1928 the closet accommodation of Bolton was as follows :—

Fresh-water closets ...	...	...	...	...	27,672
Waste-water closets...	...	...	...	...	15,064
Pail closets ...	...	...	...	...	2,816
Privy Middens ...	...	...	...	...	1,840

The total number of privy middens and pail closets remaining in Bolton at the beginning of 1929 was 4,656.

As the number of fresh-water closets provided in replacement of other systems in 1928 was 2,156, it should be possible to get rid of the remaining privy middens and pail closets by the middle of 1931 or certainly by the end of that year. I repeat here that pail closets are quite as objectionable as privy middens.

In the following table is set forth the nature of the closet accommodation in the various wards of the Borough.

CLOSET ACCOMMODATION, 1928.

	No. of Closets Converted or Demolished, 1928.				F.W.Cs. provided in lieu of any other type and additions in new and old houses, 1928.	Present Closet Accommodation, 1928.				Per Cent. on	
	P.M.	Pail.	W.W.C.	F.W.C.		P.M.	Pail.	W.W.C.	F.W.C.	Dry System.	Water System.
Old Borough...	295	1602	11	6	1985	598	2785	10856	15878	11'2	38'8
Great Lever ...	143	3	...	...	218	368	...	1104	2122	10'2	39'8
Tonge ...	24	...	1	...	162	52	...	766	2736	1'5	98'5
Astley Bridge ...	12	...	2	...	43	57	12	499	1666	3'1	96'9
Smithills ...	11	...	4	...	125	79	4	707	1691	3'3	96'7
Hulton ...	12	...	...	...	35	104	...	590	938	6'4	93'6
Darcy Lever-cum- Brightmet ...	41	2	1	...	55	329	...	181	926	22'9	77'1
Deane-cum-Lostock ...	24	...	...	...	28	169	3	212	787	14'7	85'3
Heaton ...	8	...	...	...	46	84	12	149	928	8'2	91'8
Extended Borough ...	570	1607	19	6	2697	1840	2816	15064	27672	9'8	90'2

200

Scavenging.

The town's refuse, other than sewage, is disposed of in three ways : part is sold as manure, part is incinerated, and part is deposited on tips.

The contents of privy middens and of pail closets is sold as manure.

The remaining refuse is disposed of as follows :

60 per cent. is incinerated by the Corporation's destructors.

15 per cent. is disposed of as manure.

25 per cent. is placed on tips or disposed of to local farmers.

The removal of the town's refuse is carried out in an efficient manner under the supervision of the Cleansing Committee.

Ashbins are emptied weekly.

Ashpits are emptied weekly to once in 3 weeks.

Pail Closets are emptied at least once a week.

Privy Middens are emptied every 3 to 6 weeks.

SANITARY INSPECTION

The nature, and to a great extent, the amount of ground covered by the Sanitary Inspectors is shown by the following detailed statement of work done:—

GENERAL INSPECTIONS.

Houses	...	...	...	...	...	...	17232
Newly-infected houses	...	...	...	...	...	...	872
Schools	...	...	...	...	...	...	2
Common lodging-houses	...	...	...	...	...	...	982
Houses-let-in-lodgings	...	...	...	...	...	...	859
Factories	...	...	...	...	...	...	275
Workshops	...	...	...	...	...	...	327
Workplaces	...	...	...	...	...	...	314
Bakehouses	...	...	...	...	...	...	544
Offensive trades	...	...	...	...	...	...	68
Dairies, Cowsheds, and Milk-shops...	...	...	...	...	...	...	941
Conversion of Closets	...	...	...	...	...	...	9698
Drains...	...	...	...	...	...	...	2154
Miscellaneous...	...	...	...	...	...	...	2780

NUISANCES FOUND.

Houses, workshops, cowsheds, etc., needing limewashing	1052
Houses overcrowded	13
House roofs, walls, floors, etc., in bad repair	1076
Insan. or insufficient closet accommodation	1980

Ashpits or pails in bad repair	...	...	...	...	207
Defective or choked drains	...	...	...	...	294
Yards in bad repair	...	...	...	...	67
Animals kept as a nuisance	...	...	...	...	12
Miscellaneous	...	...	...	...	1122
ACTION TAKEN.					
Letters written	...	...	...	...	621
Informal notices served	...	...	...	...	1525
Verbal notices	...	...	...	...	596
Legal notices served	...	...	...	...	691
NUISANCES ABATED.					
Houses, etc., limewashed	...	...	...	...	917
Overcrowding abated	...	...	...	...	11
House roofs, etc., repaired	...	...	...	...	722
Eaves gutters and downspouts repaired	...	...	...	...	311
Closets converted	...	...	...	...	2174
Ashpits or pails repaired	...	...	...	...	116
Drains reconstructed (excluding closet conversions)	...	...	...	...	54
Drains opened, trapped or repaired	...	...	...	...	252
Yards repaired or flagged	...	...	...	...	50
Miscellaneous repairs	...	...	...	...	567
Miscellaneous nuisances abated	...	...	...	...	474
DISINFECTIONS.					
Houses disinfected	...	...	...	...	1082
Articles disinfected	...	...	...	...	5760
Articles destroyed	...	...	...	...	287
COMPLAINTS.					
From Public	...	...	...	...	192
From Factory Inspector	...	...	...	...	15
Reports on complaints to Factory Inspector	...	...	...	...	15
PLACES UNDER INSPECTION.					
Common lodging-houses	...	...	...	...	35
Houses-let-in-lodgings	...	...	...	...	41
Factories	...	...	...	...	330
Factory Chimneys	...	...	...	...	226
Workshops and Workplaces	...	...	...	...	799
Bakehouses	...	...	...	...	289
Outworkers' Premises	...	...	...	...	15
Offensive trades	...	...	...	...	24
Slaughterhouses	...	...	...	...	33
Cowsheds	...	...	...	...	368
Milk-shops	...	...	...	...	390
Public Sanitary Conveniences	...	...	...	...	23
Travelling Vans	...	...	...	...	114

Factories and Workshops.

In accordance with the provisions of Section 132 of the Factory and Workshop Act, 1901, the Medical Officer of Health is required to make to the Secretary of State for the Home Office the following report which gives in addition to other information, the total number of defects found and notices served.

I.—INSPECTION.

Premises.	Number of		
	Inspec- tions.	Written Notices.	Prosecu- tions.
Factories (Including Factory Laundries)	275	6	—
Workshops (Including Workshop Laundries)	327	5	—
Workplaces (Other than Outworkers' premises)	314	4	—
Total	916	15	—

2.—DEFECTS.

Particulars.	Number of Defects.			Number of Prosecu- tions.
	Found	Remedied	Referred to H.M. Inspector	
<i>Nuisances under the Public Health Acts:—*</i>				
Want of cleanliness	44	42	—	—
Want of ventilation	1	1	—	—
Overcrowding	1	1	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	2	2	—	—
Sanitary accommodation { insufficient	1	1	—	—
{ unsuitable or defective	15	13	—	—
{ not separate for sexes	1	1	—	—
<i>Offences under the Factory and Workshop Acts:—</i>				
Illegal occupation of underground bake- house (s. 101)	—	—	—	—
Other offences	—	—	—	—
(Excluding offences relating to outwork and offences under the Sections men- tioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order 1921).				
Total	65	61	—	—

* Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

There was no outwork found to be carried on in unwholesome premises during the year.

Smoke Abatement.

Prior to the passing of the Smoke Abatement Act of 1926, the only statutory power for dealing with smoke as a nuisance was that of the Public Health Act of 1875 which classified as a nuisance "any chimney (not of a private dwelling house) sending forth black smoke in such quantity as to be a nuisance."

It was left to each local authority to decide what should be the standard. The Bolton authority decided to regard the omission of black smoke for periods which in the aggregate exceeded two minutes in any half-hour as a nuisance, but bursts of dense black smoke for periods of less than thirty seconds were not to be counted.

Nowhere was a stricter standard adopted than this, and very few areas accepted so strict a standard as this.

The Smoke Abatement Act of 1926 gives power to make bye-laws, which must receive the approval of the Ministry of Health. Bolton has adopted as a bye-law the standard it had already established for black smoke, and has submitted this bye-law for the approval of the Ministry of Health.

The County Borough of Bolton is co-operating with the Manchester Regional Smoke Abatement Committee.

So far it has been found impossible to formulate bye-laws for smoke other than black, or for new buildings.

Private houses are not affected by any of these bye-laws.

The work done during 1928 to enforce the observance of the standard adopted for black smoke was as follows :

642 half-hour observations were taken. Of these observations :

264 showed no emission of black smoke.

138 showed $\frac{1}{2}$ minute of black smoke.

191 showed 1 minute of black smoke.

48 showed $1\frac{1}{2}$ minutes of black smoke.

1 showed more than 2 minutes of black smoke.

In this last case, notice to abate the nuisance was served.

In industrial centres such as Bolton the atmosphere will be cleared of smoke when, and only when, gas, electricity, or a smokeless solid fuel replace the present method of generating energy for the industries of these centres.

PREMISES CONTROLLED BY BYE-LAWS OR REGULATIONS.

Common-Lodging-Houses.

The number of registered common-lodging-houses in Bolton is 35. In 1926 there were 38.

The ward distribution of these common-lodging-houses and the accommodation they afford is as follows :

Ward.			Houses.		Rooms.		Beds.
Exchange	...	...	10	...	59	...	201
East	...	...	21	...	135	...	695
Church	...	...	2	...	17	...	186
Derby	...	...	2	...	16	...	74

ACCOMMODATION FOR THE SEXES.

Description.			Houses.	Males.	Females.	Couples.
Males only	...	...	25	918	...	...
Females only	...	...	1	...	56	...
Males and Females	...	...	1	27	8	...
Females and Couples	...	...	1	...	7	4
Males and Couples	...	...	3	45	...	7
Males, Females and Couples	...	...	4	35	25	24
			35	1025	96	35

Frequent night visits are paid to all these premises. The number of beds provided in the common-lodging-houses of Bolton is in excess of the demand. Except in the case of couples a large number of beds is always unoccupied.

Houses Let-in-Lodgings.

Bye-laws for the regulation of these premises are now being prepared for submission to the Ministry of Health.

Vans.

There were 44 living vans in Bolton at the close of 1928. As soon as the difficulty of obtaining housing accommodation diminishes I shall recommend that drastic steps be taken to get rid of all these vans.

The location and occupancy of these vans is shown in the following table :

Situation.	No. of Vans.	Occupants.	
		Adults	Children
Fern Street	7	16	8
31, Bridgman Street	2	2	1
Cheetham Court	1	1	2
Corner of Bridge St. and St. George's St. ...	7	15	3
Land adjoining Tonge Moor House ...	6	5	2
Tonge Head Farm, near Tonge Moor Road	4	5	6
Radcliffe Road (200 yards from Long Lane)	5	9	3
Land adjoining 307, Radcliffe Road ...	1	2	2
Rear of 405, Radcliffe Road	2	2	—
Opposite Roscoe Fold Farm	1	2	2
Croft Side	1	3	2
Tonge Studs, Ainsworth Lane	1	1	1
Field adjoining Withins Lane	1	2	—
Adjoining Capitol Bleachworks	1	2	—
Barrow Bridge	1	1	—
Back Darley Street	2	2	—
Cotton Street	1	2	4
	44	72	36

Offensive Trades.

Offensive trades are being carried on in 24 different premises in Bolton. The nature of these trades and their distribution in the wards of the town is shown in this table :

OFFENSIVE TRADES.

Trade.	Added Area.	West.	Halliwell.	Bradford.	Derby.	East.	Church.	North.	Rumworth.	Exchange.	TOTAL.
Tripe Boilers	1	...	...	2	...	...	1	...	...	...	4
Fellmongers and Tanners	1	...	...	1	...	...	...	...	...	...	2
Hide and Skin Depots ... ..	...	...	...	...	...	1	...	...	...	1	2
Gut Scraping ... ..	...	...	...	1	...	...	...	...	...	...	1
Blood Boiler ... ..	...	...	...	...	...	...	1	...	...	...	1
Soap Works... ..	1	...	...	...	...	...	...	...	...	...	1
Chemical Works ... ..	...	...	...	...	...	1	1	...	...	...	2
Muriatic Acid Works	1	...	...	...	...	...	...	...	...	...	1
Tar and Ammoniated Sulphate Works	1	...	...	...	...	...	...	...	...	...	1
Brick Works	6	...	1	...	...	...	...	...	1	...	8
Knackers' Yard ... ..	...	...	...	...	...	...	1	...	...	...	1
Total Offensive Trades	10	1	1	4	...	2	4	...	1	1	24

No serious nuisance has arisen in connection with any of the above trades.

Slaughter-houses

The accommodation in Bolton for slaughtering is as follows :

There is a Corporation Abattoir where limited accommodation caters for the needs of only a few of Bolton's butchers.

There are 17 private slaughter-houses on our Register, of which 12 are registered, and five are licensed. All have been in regular use throughout 1928.

The private slaughter-houses are used for the slaughter of the different classes of animals as follows :—

For Cattle, Sheep and Pigs	8 Slaughter-houses.
For Cattle and Pigs	1 Slaughter-house.
For Cattle only	1 Slaughter-house.
For Pigs only	7 Slaughter-houses.

Two applications for change of occupancy of private slaughter-houses were received during the year, and in each case the application was granted.

For the purpose of inspecting the meat and supervising the sanitary condition of the premises, 2,616 visits were paid by your officers to slaughter-houses during 1928.

Bolton is an important centre for the meat trade, and it is important that all slaughtering should be centralised.

SECTION IV.



Housing.

HOUSING.

For house-building, 1928 was a poor year. The number of new houses completed in 1928 was 479.

I repeat here the table showing the number of new houses completed in Bolton since 1921.

Year.		Private Enterprise.		Municipal Schemes.		Total.
1921	...	34	...	191	...	225
1922	...	18	...	462	...	480
1923	...	111	...	30	...	141
1924	...	351	...	3	...	354
1925	...	502	...	179	...	681
1926	...	610	...	251	...	861
1927	...	571	...	510	...	1,081
1928	...	319	...	160	...	479

Of the 479 new houses completed in 1928, State Assistance under the Housing Acts was given in respect of 416 such houses. Of these :

160 were erected by the Local Authority.
256 were erected by private enterprise.

The number of unsubsidized houses erected in Bolton in 1928 was 63. The following table shows the number of dwelling-houses in Bolton in the last three census years, and in the years 1925 to 1928.

That overcrowding prevails to any great extent in the homes of Bolton is disproved by the same table which shows the number of houses and the population per house :

			Houses.		Inhabitants per House.
Census	1901	...	36,177	...	4·64
	1911	...	41,585	...	4·34
	1921	...	42,475	...	4·28
Estimated	1925	...	44,193	...	4·08
	1926	...	45,054	...	3·92
	1927	...	46,088	...	3·86
	1928	...	46,547	...	3·88

The Registrar General's estimate of the population of Bolton in 1928 is 181,200, an increase of 2900 on the population of 1927. Allowing 3·88 persons per house, the increase of population of 1928 would have required 763 houses. There is no doubt that during 1928 the need for more houses became more and more evident in Bolton.

Slum Areas.

The clearance and reconstruction of slum areas is, apart from the question of expense, an easy matter if the following problems can be solved :

- (1) The housing of the inhabitants of the slum area whilst reconstruction is being carried out.
- (2) The provision of permanent dwelling accommodation for such of the inhabitants of the slum area as are unable to pay an economic rent for a house. Such inhabitants are to be found in every slum area in every town, and they constitute by far the most difficult element in the problem of slum clearance.

These persons might be housed during the period of reconstruction in one of the following ways :

- (1) Houses for this purpose might be built in some fairly central position. These houses would be tenanted in turn by the inhabitants of the various insanitary areas. The ultimate destiny of these houses would have to be considered, but there is no doubt they could be put to a good use.
- (2) Poor-class property might be purchased and renovated. This would be a benefit to the community in every way and might to some extent solve the problem of the housing of the poorest of the community.

Houses Let-in-Lodgings.

At the time of writing (6-5-29) the Bye-laws for Houses Let-in-Lodgings adopted by the Council of the County Borough of Bolton are still awaiting the approval of the Ministry of Health. The powers which would be conferred by these Bye-laws are urgently needed. No persons have suffered so grievously from the housing shortage as those compelled to live in lodgings. The charges made for these rooms are in many cases grossly exorbitant, and the amenities provided in return for these exorbitant charges are miserable.

In my opinion the problem of the housing of a large proportion of these people now living in lodgings is one deserving of serious consideration. It would seem that the housing of the working classes will remain, what it is now, a service undertaken by the community. Why then should the community do nothing for those for whom a two roomed apartment is adequate accommodation, and all the accommodation they can afford? There are many such households. Childless, elderly married couples, or married couples whose children have left them, belong to this class. These people are a very important element in the creation of slum conditions when their needs are catered for by private enterprise. The supervision of the conditions under which these people lived would be much easier if they were housed in Corporation property.

1. INSPECTION OF DWELLING-HOUSES DURING THE YEAR.

(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts) ...	4295
(2) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925 ...	1635
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	33
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	1201

2.—REMEDY OF DEFECTS WITHOUT SERVICE OF FORMAL NOTICES.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	951
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3.—ACTION UNDER STATUTORY POWERS DURING THE YEAR.

A. *Proceedings under Section 3 of the Housing Act, 1925.*

(1) Number of dwelling-houses in respect of which notices were served requiring repairs... ..	175
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(2)	Number of dwelling-houses which were rendered fit after service of formal notices—	
	(a) by owners	140
	(b) by Local Authority in default of owners...	33
(3)	Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	—

B. *Proceedings under Public Health Acts.*

(1)	Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	76
(2)	Number of dwelling-houses in which defects were remedied after service of formal notices—	
	(a) by owners	76
	(b) by Local Authority in default of owners	—

C. *Proceedings under sections 11, 14 and 15 of the Housing Act, 1925.*

(1)	Number of representations made with a view to the making of Closing Orders	33
(2)	Number of dwelling-houses in respect of which Closing Orders were made	33
(3)	Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	—
(4)	Number of dwelling-houses in respect of which Demolition Orders were made	—
(5)	Number of dwelling-houses demolished in pursuance of Demolition Orders	—

The following tables give particulars as to numbers and situation in Wards of houses which were completed and certified during 1928, of all houses which were in course of construction during 1928, but which were unfinished at its close, and of all houses for which plans had been passed during 1928, but whose construction had not been begun when this year ended.

New Houses Certified, 1928.

Ward.	Number		Total.
	Subsidy.	Non-Subsidy.	
Central	12	5	17
Rumworth... ..	30	—	30
Halliwell	10	—	10
Tonge	135	2	137
Astley Bridge	16	13	29
Great Lever	69	5	74
Smithills	101	5	106
Hulton	20	3	23
Darcy Lever-cum- Brightmet	11	2	13
Deane-cum-Lostock ...	2	—	2
Heaton	10	28	38
	<hr/> 416	<hr/> 63	<hr/> 479

Houses in course of construction on 31st December, 1928.

Ward.	Number		Total.
	Subsidy.	Non-Subsidy.	
Central	5	115	120
Rumworth	22	3	25
Halliwell	35	1	36
Tonge	78	10	88
Astley Bridge	12	9	21
Great Lever	79	17	96
Smithills	44	6	50
Hulton	10	4	14
Darcy Lever-cum- Brightmet	—	2	2
Deane-cum-Lostock ...	7	9	16
Heaton	—	15	15
	<hr/> 292	<hr/> 191	<hr/> 483
TOTAL			

Houses for which plans had been approved but construction had not been commenced on 31st December, 1928.

Ward.	Number		Total.
	Subsidy.	Non-Subsidy.	
Central	—	4	4
Rumworth	—	—	—
Halliwell	15	—	15
Tonge	—	6	6
Astley Bridge	—	2	2
Great Lever	20	3	23
Smithills	14	5	19
Hulton	—	1	1
Darcy Lever-cum- Brightmet	—	11	11
Deane-cum-Lostock	—	2	2
Heaton	—	14	14
	<hr/>	<hr/>	<hr/>
TOTAL	49	48	97

SECTION V.

Inspection and Supervision
of Food, etc.

Supervision of Food Supply.

The information given in this section will show the very great amount of work done in supervising the food of the town. This supervision is welcomed by the honest trader, and the great majority of traders are honest. The honest dealer welcomes the supervision because it protects him from unfair competition based on dishonesty.

I am confident that the conditions under which milk is produced in Bolton will bear comparison with those obtaining in any other area in the country.

On one point I desire to repeat a warning I have already given. Milk sold in a bottle is not necessarily any cleaner or in any way better than milk sold from a kit. If the bottle is thoroughly cleansed and sterilised, then the sale in bottles is excellent. The cleansing and sterilising of milk bottles is not an easy matter. It is one which requires very great care and thoroughness. I wish to impress on all dealers sending out milk in bottles, the importance of extreme care in the cleansing of these bottles.

Full information as to milk production in Bolton is given below :—

The Milk and Dairies Order, 1926.

COWKEEPERS, DAIRYMEN AND PURVEYORS OF MILK.

Cowkeepers on register (1927)	...	...	...	...	126
„ added to register (1928)	...	...	...	...	4
„ discontinued (1928)	...	...	...	...	1
Total				...	129
Cowsheds on register (1927)	...	...	...	...	364
„ added to register (1928)	...	...	...	...	7
„ discontinued (1928)	...	...	...	...	3
Total				...	368

The following statement shows the number of cowkeepers, cowsheds, number of cows provided for, and the average number of cows in sheds in the respective districts on 31st December, 1928 :—

Number of District	Cowkeepers	Cowsheds	Number of Cows provided for	Average number of Cows in sheds
1	14	41	376	306
2	30	82	810	683
3	20	51	446	376
4	23	66	556	395
5	19	50	445	335
6	23	78	702	630
Totals	129	368	3335	2725

Number of dairies and purveyor of milk premises on register (31st December, 1928) ... 390

Milk (Special Designations) Order, 1923.

The following licences were granted during the year 1928 under this Order.

Producers Licence to use the designation "Certified" (Licence issued by Ministry of Health.)	...	1
Dealers Licence to use the designation "Certified"	...	3
Producers Licence to use the designation "Grade A"	...	4
Dealers Licence to use the designation "Grade A"	...	2
Dealers Licence to use the designation "Pasteurized" (Licence is in respect of a Pasteurizing establishment.)	...	1
Supplementary Licence to use the designation "Pasteurized"	... ..	1

"Certified" Milk.

One dairy farmer in the Borough has again been granted a licence to produce "Certified" Milk.

In accordance with the provisions of the Order for producers of "Certified" Milk, every animal in the herd has been examined and submitted to a prescribed tuberculin (combined intra-dermal and ophthalmic) test twice during the year by this department.

"Grade A" Milk.

Licences to produce "Grade A" Milk have been granted to four dairy farmers in the Borough.

As in previous years these farms have been visited monthly, when all recently purchased cows were submitted to a careful examination before being admitted to the herd. During each visit all the cows in the herds are examined, and a careful inspection is made of the cowsheds, dairies and utensils, in regard to cleanliness, to ensure that the provisions of the Order are being carried out satisfactorily.

The following table shows the number of visits to dairy farms, the number of cowsheds inspected, and the number of cows examined as compared with the previous year:—

Year.	Visits to Dairy Farms.	Cowsheds inspected.	Number of Cows examined.
1928	315	997	7520
1927	320	994	7372

The regular systematic inspection of cows and cowsheds in the Borough has been maintained throughout the year.

On visiting each farm a careful examination is made of all cows for clinical signs of tuberculosis, and special attention is directed to the examination of the udders for the purpose of detecting early lesions of tuberculosis, and other diseases of the udder which are notifiable under the Order.

During the year eleven samples of milk were taken from individual cows and submitted to the biological test. Five of these were found to contain tubercle bacilli. The cows from which these positive milk samples were obtained have been dealt with under the provisions of the Tuberculosis Order.

Ten control samples of milk involving groups of cows were taken, all of which on examination were returned negative.

The provisions of the Order have been strictly enforced, and some progress has been made in regard to the cleanliness of the cows, cowsheds, and dairy utensils, and in the production of clean milk.

Many improvements and structural alterations have been carried out in existing cowsheds, and two new cowsheds have been erected during the year.

GENERAL FOOD INSPECTION.

The general inspection of the food supplies of Bolton has been very ably and energetically carried out during 1928, by our Veterinary Surgeon Mr. R. P. Holmes, F.R.C.V.S., and our Meat Inspector, Mr. F. Saunders. Mr. Saunders, who had given valuable service, left us in May, 1928, and was succeeded by Mr. H. Whitaker, who is proving a worthy successor. I append the report of Mr. R. P. Holmes.

General Inspections.

Cattle	...	...	10,099	Public Markets	...	...	508
Calves	...	...	605	Farms	...	...	384
Sheep	...	...	61,206	Slaughterhouses	...	...	2,616
Pigs	...	...	8,520	Knacker's Yard	...	...	23
Store Cattle	...	...	307	Tripe Works	...	...	49
Railway Sidings	...	...	142	Gut Cleaners	...	...	31
Fairs	...	...	74	Food Preparation Premises	...	...	298
				Meat Carriers' Vehicles	...	...	502

Shops, Stalls and Stores.

Beef Butchers	...	2,562	Provision Dealers	...	2,704
Pork Butchers	...	1,230	Fruiterers	...	2,445
Wholesale Meat Stores	...	133	Fishmongers	...	1,508
Cold Stores	...	20	Street Hawkers	...	880
Ice Boxes	...	539	Cellars	...	402

CARCASES FOUND TO BE AFFECTED WITH DISEASE.

Disease or Defect.	Examined				Action taken		Exam- ined	Action taken		Exam- ined	Action taken		Exam- ined	Action taken	
	Cows	Bulls	Heifers	Bullocks	Whole carcase destroyed	Parts and Organs destroyed		Calves	Whole carcase destroyed		Parts and Organs destroyed	Sheep		Whole carcase destroyed	Parts and Organs destroyed
Tuberculosis	1407	76	55	153	256	1435	4	3	1	...	...	...	377	34	343
Pleurisy	43	8	4	23	...	78	...	...	...	6	...	6	17	...	17
Pneumonia	1	...	...	...	...	1	...	...	...	...	...	...	11	...	11
do. Parasitic	...	...	...	...	...	...	...	...	...	20	...	20	...	...	...
do. Septic	1	...	...	...	1	...	...	...	...	1	1	...	...	...	...
Peritonitis ... ..	...	...	...	...	...	...	...	...	...	7	...	7	...	...	...
Nepbritis	4	...	...	...	...	4	1	1	...	...	...	...	...	...	...
Pericarditis ... ..	...	2	...	2	...	4	...	...	...	...	...	...	...	...	...
Septicæmia	3	...	...	...	3	...	...	...	...	...	...	...	2	2	...
Abscess	20	5	2	9	...	36	...	...	...	...	...	...	2	...	2
Bacterial Necrosis	11	2	1	11	...	25	...	...	...	...	...	...	...	...	...
Actinomycosis	7	2	...	4	...	13	...	...	...	...	...	...	...	...	...
Echinococcus	154	3	2	29	...	188	...	...	...	2	...	2	12	...	12
Distomatosis	267	19	35	406	...	727	...	...	...	258	...	258	...	...	...
Decomposition	2	...	1	...	3	...	1	1	...	40	37	3	3	2	1
Angioma	85	1	3	24	...	113	...	...	...	...	...	...	...	...	...
Johnes Disease	6	...	...	...	6	...	...	...	...	...	...	...	...	...	...
Jaundice ... ..	...	...	...	...	...	...	...	...	...	2	2	...	4	4	...
Fractures	1	...	...	...	...	1	1	...	1	...	...	...	2	...	2
Traumatism	2	...	...	2	...	4	...	...	...	3	...	3	2	...	2
Œdema	6	...	...	...	6	...	3	3	...	49	49	...	1	1	...
Immaturity ... ..	...	...	...	...	...	...	8	8	...	...	...	...	...	...	...
Fevered	7	...	...	...	7	...	1	1	...	...	...	...	1	1	...
Tenuicollis...	...	...	...	...	...	...	...	...	...	...	...	...	11	...	11
Enteritis ... ..	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...
Cirrhosis	9	3	...	5	...	17	...	...	...	...	...	...	23	...	23
Caseous Lymphadenitis	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Arthritis ... ..	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Neoplasms...	...	...	...	3	...	3	...	...	...	...	...	...	...	...	...
Swine Fever ... ..	...	...	...	...	...	...	...	...	...	...	...	...	7	7	...
Total	2036	121	103	671	282	2649	20	18	2	389	90	299	478	51	427

**Number of Organs Destroyed for Tuberculosis and Other Conditions
in the Different Classes of Animals during 1928.**

	Cattle.	Calves.	Sheep.	Pigs.	Total.
LUNGS :					
Tuberculosis	1336	4	...	258	1598
Other conditions ...	314	15	206	49	584
HEARTS :					
Tuberculosis	665	3	...	232	900
Other conditions ..	21	15	28	15	79
BOWELS :					
Tuberculosis	688	3	...	164	855
Other conditions ..	17	15	26	9	67
STOMACHS :					
Tuberculosis	659	3	...	159	821
Other conditions ...	20	15	26	3	64
SPLEENS :					
Tuberculosis	643	3	...	150	796
Other conditions ...	11	15	26	9	61
LIVERS :					
Tuberculosis	878	4	...	223	1105
Other conditions ...	1227	15	381	67	1690
KIDNEYS :					
Tuberculosis	22	...	...	...	22
Other conditions ...	52	...	8	...	60
HEADS :					
Tuberculosis	741	3	...	302	1046
Other conditions ...	26	15	24	2	67
TOTAL	7320	128	725	1642	9815

Weight of Unsound Meat Destroyed

	Number	Tons.	cwts.	qrs.	lbs.
Beef Carcases ...	282	60	8	2	8
„ Fore quarters ...	48	2	11	1	20
„ Hind quarters ...	23	1	2	3	12
„ Briskets ...	335	2	4	3	13
„ Offals ..	—	38	5	2	17
Mutton Carcases ...	90	1	19	3	24
„ Fore quarters ...	7	...	...	3	3
„ Hind quarters ...	6	...	...	2	21
„ Offals ...	—	...	13	3	17
Pork Carcases ...	51	3	4	...	19
„ Fore quarters ...	7	...	2	1	24
„ Hind quarters ...	3	...	1	1	10
„ Offals ...	—	2	10	2	8
Veal Carcases ...	18	...	7	...	13
„ Offals ...	—	...	2	...	5
Total Weight ...	...	113	16	1	18

In addition to the above, the following unsound imported meat and offals were destroyed, chiefly owing to decomposition :

	Tons.	cwts.	qrs.	lbs.
Beef	11	3	13
„ Livers	6	15
„ Kidneys	9
„ Casings	2	19
Mutton	5	2	9
Pork Kidneys	2	10
Total Weight ...	1	0	1	19

Unsound Fish Destroyed.

						Tons.	cwts.	qrs.	lbs.
Cod	...	...	...	...	...	...	10	1	2
Finnon Haddock	...	...	...	...	...	...	...	1	14
Fillets	...	...	...	...	...	...	4	1	21
Hake	...	...	...	...	...	...	...	1	22
Herrings	...	...	...	...	...	...	7	0	0
Kippers	...	...	...	...	...	...	3	1	21
Lemon Soles	...	...	...	...	...	...	...	...	22
Monk Fish	...	...	...	...	...	...	...	...	18
Plaice	...	...	...	...	...	...	...	...	24
Salmon	...	...	...	...	...	...	...	...	18
Skate	...	...	...	...	...	...	5	0	0
Total	...	...	...	...	...	1	11	2	22

Unsound Poultry and Rabbits Destroyed.

						Number	cwts.	qrs.	lbs.
Chickens	...	...	...	...	...	12	...	1	8
Turkeys	...	...	...	...	...	4	...	1	8
Rabbits	...	...	...	...	...	115	2	0	10
Total	...	...	...	...	...	131	2	2	26

Canned Foods and Provisions Destroyed as Unsound

		Number of Tins, etc.	cwts.	qrs.	lbs.
Condensed Milk	...	10	...	...	10
Ox-Tongue	...	3	...	...	14
Corned Beef	...	2	...	...	12
Hams	...	3	...	3	2
Ham (Boiled)	...	1	...	...	12
Bacon	...	—	...	...	8
Eggs	...	1220	1	1	12
Total	...	1239	2	2	14

Unsound Fruit and Vegetables Destroyed.

			Tons.	cwts.	qrs.	lbs.
Apples	...	...	...	2	3	2
Grapes	...	...	...	6	3	4
Lemons	...	...	...	...	...	15
Oranges	...	...	...	1	0	0
Pears	...	...	...	...	1	8
Tomatoes	...	...	1	9	1	18
Carrots	...	...	1	5	0	0
Celery	...	...	...	...	1	0
Onions	...	...	...	...	2	8
Potatoes	...	...	1	1	0	0
Salad	...	...	...	...	2	5
Total	...	...	4	7	3	4

Unsound Food.

Proceedings were instituted and convictions obtained in the following cases :

1. Being in possession of unsound meat intended for the food of man.
Fined £180.
2. Being in possession of unsound meat intended for the food of man.
Fined £16.
3. Exposing for sale, unsound eggs intended for the food of man.
Fined £10-5-0.

Sale of Food Order, 1921.

Throughout the year the provisions of this Order have been strictly enforced, and very careful inspections and observations have been made.

It was found necessary to caution nine persons for breaches of this Order, and re-visits to these premises showed that the cautions were sufficient to produce the desired effect. In one instance a provision dealer was prosecuted for failing to label imported eggs as such, and a fine of £1. 5s. od. was imposed.

Public Health (Meat) Regulations, 1924.

To enforce the provisions of these regulations frequent visits are made to the 255 butcher's shops and stalls in the Borough.

Careful inspections are made of the shop premises, ice boxes, cellars, utensils, and waste receptacles, and any negligence is at once brought to the notice of the occupier, and instructions given to remedy such defects.

In only 15 instances were signs of negligence found, and in each case a caution was deemed sufficient.

Taken on the whole, the shops are kept in a reasonably clean condition, the butchers recognizing that cleanliness is an essential factor in business organization. The provisions of these regulations have done much to improve the standard of cleanliness, also the handling, transport and distribution of the meat supply.

Notices received under the Public Health (Meat) Regulations, 1924.

Written notifications of regular slaughtering at fixed times on	
fixed days	16
Notification of slaughtering at other than fixed times on fixed days	607

Notification of disease or suspected disease or unsoundness.

Relating to cattle	...	...	...	...	...	...	440
„ sheep	...	...	...	...	...	...	7
„ pigs	...	...	...	...	...	...	104
„ calves	...	...	...	...	...	...	5
Total	...	...	...	...	...	...	556

Diseases of Animals Acts, 1894 to 1927.

It is the duty of this department of the Local Authority to enforce the provisions of the Diseases of Animals Acts, and Orders of the Ministry of Agriculture and Fisheries in all outbreaks of scheduled Contagious Diseases of Animals.

This work continues to increase owing to the many new Orders which have been issued during the year.

The following is a brief account of the principal Orders under which work has been carried out during the year.

Tuberculosis Order of 1925.

This Order came into operation on the 1st September, 1925. The provisions of the Order require certain forms of bovine tuberculosis to be notified by owners of cattle.

The object of the Order is to eliminate all cattle from our herds which are suffering from tuberculosis of the udder, giving tuberculous milk, or are clinically affected with tuberculosis; such cattle are a source of danger by spreading disease not only to human beings who consume the milk, but also to other "in contact" bovine animals.

The following table shows the number of animals examined, the number of animals dealt with, and the form in which they were diseased:—

Total Number of Animals Examined	Number of Animals Slaughtered	Number with Tuberculosis of Udder	Number giving Tuberculous Milk	Number with Tuberculous Emaciation	Number with chronic cough and definite signs of Tuberculosis
1153	39	10	1	10	18

For failing to notify to the Local Authority that a cow in his possession was suffering from Tuberculosis of the Udder, a farmer was prosecuted and fined £10.

Anthrax.

No outbreaks of this disease have occurred in the Borough during the year.

Nine animals were reported to this Department as having died suddenly, or having been found dead without history of previous illness. On investigation all proved negative to Anthrax.

Foot and Mouth Disease.

During the year no outbreaks of this disease occurred in the Borough.

The restrictions imposed by the Ministry of Agriculture and Fisheries under the Foot and Mouth Disease Orders in which Bolton was included in the Infected Area on the 17th December, 1927, remained in force until the 26th January, 1928. On this date Bolton was declared a free Area. During the 25 days that Bolton was in the Infected Area, 536 licences authorising movements of animals were granted by this Department.

An outbreak of Foot and Mouth Disease having been confirmed in Manchester Pig Market, the Ministry of Agriculture and Fisheries on the 23rd March, scheduled as an infected Area a radius of 15 miles around the infected premises. Bolton was included in this Area, and movements of animals were controlled by licences. As no further outbreaks of the disease occurred the Ministry of Agriculture released the Borough from restrictions on the 9th April. During this period 370 licences were granted by this Department.

Owing to a suspected outbreak of Foot and Mouth Disease in Ireland, on the 22nd July, it became necessary to trace the movements of all animals likely to have been in contact with animals from the infected district. Irish dairy cattle having been received on eight farms within the Borough, detention notices were served on each of these farms on the 30th July. A veterinary examination was made of all Irish animals which had arrived in the Borough, but no symptoms of Foot and Mouth Disease were discovered.

Irish cattle from the Bolton Authorized Market had been licensed to five premises outside the Borough prior to receiving notification of the suspected outbreak. In each case the receiving Local Authority was notified of the requirements of the Order.

No further outbreaks of the disease having occurred, all restrictions were withdrawn on Irish cattle on the 5th August by an Order of the Ministry of Agriculture and Fisheries.

As a result of this Order the detention notices served on the eight farms in the Borough were then withdrawn.

PROSECUTION.

On the 5th January, 1928, a farmer was prosecuted and fined 5/- for moving an animal without a licence.

Swine Fever.

On the 19th November a suspected outbreak of this disease was reported on one of the Piggeries in the Borough. Restrictions were at once imposed on the premises, and all precautionary measures taken. The Ministry of Agriculture and Fisheries was notified, and on the 23rd November the disease was confirmed by the Ministry.

When the outbreak occurred, 26 pigs were found on the premises. Of these, 6 died, and on the 22nd November, the owner, without awaiting the results of the Ministry's investigations, slaughtered the remaining 20 pigs in order to reduce the heavy loss which would have otherwise occurred by the rapid spread of disease to the animals which had been in contact.

On post-mortem examination of the slaughtered pigs, 7 were found to be affected with Swine Fever, and 13 were found healthy.

The diseased carcasses and offals were removed and destroyed, and the premises thoroughly disinfected in accordance with the provisions of the Swine Fever Order.

On the 12th December, all restrictions on the premises were withdrawn by the Ministry.

Parasitic Mange.

Under the Parasite Mange Order two suspected cases were reported during the year. Microscopical examination was made of skin scrapings from each animal with negative results.

Movement of Animals (Records) Order of 1925.

The object of this Order is to facilitate the tracing of animals which may have been exposed to infection, and for this purpose all persons moving or permitting the movement of animals are required to keep a record in the form specified, showing such movements.

Frequent inspections have been made during the year to ascertain that farmers, dealers, and butchers were carrying out the provisions of the Order.

**Foot and Mouth Disease (Packing Materials) Order
of 1925 and 1926.**

This Order prohibits hay and straw which has been used for packing purposes, from being brought into contact with cattle, sheep, goats, other ruminating animals, and swine; and if not returned for further use as packing material it must be destroyed.

The Order also provides that no material which has been used for the wrapping of meat, meat products, or offals, shall be brought into contact with any of the above-named animals unless it has been sterilized by boiling.

During the year the premises of 24 separate firms in the Borough have been visited, including provision dealers, drysalteries, tea merchants, general store dealers, breweries, and wholesale meat stores, etc. A circular setting out in detail the provisions of the Order was given to the occupier of each of the premises visited.

After enquiries made, your Inspector was satisfied as to the ultimate disposal of the packing materials.

**Foot and Mouth Disease (Boiling of Animal Foodstuffs)
Order of 1928.**

This Order provides that any meat, bones, offal, or other part of the carcase of an animal; or any swill; or any other broken or waste foodstuffs which have been in contact with meat, bones, offal, or other part of the carcase of an animal, shall be boiled for at least one hour before being brought into contact with, or fed to, animals.

Many visits have been paid to piggeries, farms, and other premises where these foodstuffs are being fed to animals. On each of the premises visited it was found that the provisions of the Order were being satisfactorily carried out.

**Animals (Landing from Ireland, Channel Islands and
Isle of Man) Order of 1923.**

Under this Order the movement of all Animals from the above-named islands to a destination in Great Britain is controlled by licences issued by the Ministry of Agriculture and Fisheries. The checking of copies of these licences and inspection of the imported animals involves considerable amount of time.

The following imported animals were received in Bolton during 1928:—

Cattle	...	...	...	6479
Sheep	...	...	...	19490
Pigs	..	...	...	8629
Total ...				<u>34598</u>

Importation of Animals Act, 1922.

During the year a portion of the Bolton Cattle Market was licensed as an Authorised Market for the sale of imported cattle. Under the above Act, 376 imported animals were licensed by the Ministry of Agriculture and Fisheries to this Market. These cattle were inspected on arrival, and when sold, were allowed to be moved to dairy farms under further licences granted by this Department.

Orders issued by the Ministry of Agriculture and Fisheries during the year.

In addition to the many Foot and Mouth Disease Orders relating to Animal movements, the following is a list of new Orders relating to Animal Diseases introduced during the year:—

Date of Operation.	Title.
Jan. 25—	Sheep Scab Order of 1928.
Feb. 7—	Foot and Mouth Disease (Boiling of Animal Foodstuffs) Order of 1928.
	24—Foot and Mouth Disease Order of 1928.
Mar. 8—	Animals (Landing from Ireland and Isle of Man) Order of 1928, (No. 3).
	23—Cattle Plague Order of 1928.
	23—Pleuro-pneumonia Order of 1928.
	30—Quarantine Stations (Regulation) Order of 1928.
April 27—	Animals (Landing from Ireland and Isle of Man) Order of 1928, (No. 4).
July 13—	The Merchandise Marks (Imported Goods), No. 3 Order, 1928.
Aug. 3—	Agricultural Produce (Grading and Marking) Act, 1928.
	28—Anthrax Order of 1928.
Sep. 28—	Quarantine Stations (Regulation) Order of 1928, (No. 2).
Nov. 19—	Importation of Dogs and Cats Order of 1928.
	19—Foreign Hay and Straw (Amendment) Order of 1928.
Dec. 27—	Foot and Mouth Disease (Infected Areas Restrictions) (Amendment) Order of 1928.

Inspection of Markets.

The following table shows the number of animals examined at the Bolton Cattle Markets during 1928.

Number of Visits	Authorised Market	Cattle Market				
	Irish Dairy Cattle	Cattle	Sheep	Pigs	Calves	Total
74	376	1298	28	199	1015	2916

Rats and Mice Destruction Act, 1919.

During Rat Week a special circular of advice, including prescriptions and some simple suggestions on the best methods to be adopted in dealing with rat and mice infested premises, was posted to all persons whose premises are specially liable to rat and mice infestation, including farmers, butchers, occupiers of slaughter-houses, bakeries, provision dealers, corn merchants, etc. A copy of this circular was also published in the Bolton Evening News.

A number of complaints have been received at the Public Health Office during the year, and in each case the premises were visited, and after a thorough investigation, advice suitable to the particular circumstance was given.

The efforts to eradicate these pests have been continued throughout the year, and frequent visits paid to suspected rat infested premises and advice given to the occupiers.

No definite estimate can be given of the number of rats and mice destroyed in the Borough. Rat catchers have been employed on Corporation premises where over 80 rats were destroyed.

Sale of Food and Drugs Acts.

ADMINISTRATIVE RETURN OF ACTION TAKEN WITH REGARD TO SAMPLES NOT REPORTED TO BE GENUINE.

Article.	Nature of Adulteration.				Result.
Milk	·8 %	added water	...	...	Warning letter sent
Milk	1·8 %	„ „	...	..	No action taken
Milk	3·5 %	„ „	...	...	No action taken
Milk	10·2 %	„ „	...	...	Warning letter sent
Milk	11·0 %	„ „	...	...	Warning letter sent
Milk	3·3 %	deficient in fat	...	...	No action taken
Milk	9·0 %	„ „	...	...	No action taken
Milk	16·7 %	„ „	...	...	Appeal to cow sample
Sausage ...	100 parts of SO ₂ per million				Warning given to vendor and makers

OFFENCES OTHER THAN ADULTERATIONS.—Nil.

LEGAL PROCEEDINGS TAKEN.—Nil.

Annual Report of the Public Analyst and Bacteriologist
for the year ended December 31st, 1928.

The following is the report of Mr. Harry Hurst, B.Sc., F.I.C., on the work of the Public Health Laboratory during 1928 :

SUMMARY.

	Number of Samples
Food and Drugs	400
Bacteriological examinations for the M.O.H.	1415
Bacteriological examinations of Milk	275
Miscellaneous Analyses	76
Water Analyses	661
Gas Examinations	268
	<hr/>
	3095

DETAILS OF FOOD AND DRUGS.

	Total.	Genuine.	Adulterated.	Percentage Adulterated.
Milk	178	170	8	4.5
Cream	9	9	...	...
Butter	22	22	...	...
Margarine	10	10	...	...
Cheese... ..	2	2	...	...
Lard	1	1	...	...
Coffee and Mixtures ...	11	11	...	...
Cocoa	7	7	...	...
Jam and Marmalade ...	2	2	...	...
Meat Products	27	26	1	3.7
Cereals	5	5	...	...
Condiments and Spices	20	20	...	...
Fresh Fruits	1	1	..	...
Wines and Spirits ...	2	2	...	...
Drugs	21	21	...	...
Miscellaneous	82	82	...	...
	<hr/>	<hr/>	<hr/>	<hr/>
	400	391	9	2.25

BACTERIOLOGICAL EXAMINATIONS.

(For the M.O.H.)

	Total.	Positive.	Negative.	Doubtful.
Tuberculosis	1062	323	738	1
Diphtheria	341	33	303	5
Enteric Fever	12	4	8	...

FOOD AND DRUGS.

	Total examined.	Genuine.	Adulterated.
MILK.	178	170	8

All the samples were examined for preservatives and colouring matter. In all cases these were found to be absent.

The satisfactory quality has been maintained, the average (exclusive of skimmed milk) being for the year :—

Milk fat.	Non-fatty solids.	Water.
3·70	8·85	87·45

Minimum limit :—Milk fat, 3·00 ; Non-fatty solids, 8·50.

The following table shows the monthly variation :

Month.	No. of samples.	Milk Fat.	Non-fatty solids.
January	0	—	—
February	32	3·66	8·61
March	1	3·55	8·55
April	14	3·47	8·87
May	7	3·72	8·85
June	3	3·55	8·67
July	0	—	—
August	11	3·61	8·80
September	8	3·72	8·69
October	49	3·88	8·91
November	41	3·64	8·90
December	0	—	—

BUTTER.

22 samples have been examined, all were genuine and of good quality. In no case was the maximum legal limit for water exceeded (16·0 per cent.), and in no case was preservative found. In a few instances an abnormal volatile acidity has been found, but exhaustive examination has conclusively proved these to be genuine butter without the admixture of foreign fat.

MARGARINE.

10 samples have been examined. In no case has preservative been found. Prior to the Preservative Regulations coming into force, Boric Acid was almost invariably found. The commodity as now sold is sweet and wholesome, and the addition of preservative would therefore appear to be unnecessary.

The fats incorporated in the above samples were generally of vegetable origin.

CHEESE.

2 samples were examined. These were whole meat of satisfactory quality.

COFFEE AND COFFEE MIXTURES.

11 samples were examined. The mixtures consisted of coffee and chicory only (40-60 per cent chicory).

DRUGS.

All the drugs examined were of good quality, and complied with the requirements of the British Pharmacopœia.

MISCELLANEOUS EXAMINATIONS.

These were examinations of very varied character undertaken for The Streets, Police, Parks Departments, and Coroner.

PUBLIC BATHS.

The water in the plunges at Moss Street, Bridgman Street, and High Street Baths has been examined monthly. The analyses reveal for the most part a uniformly satisfactory condition.

Bacteriological Examination of Milk.

VENDED MILK. (Bottled).

No Ministry of Health standard of purity.

No. of samples examined...	...	...	...	...	22
Average Agar count per 1 c.c.	...	...	...	...	51,805
No. of samples with B. Coli in 1/1000 c.c.	...	...	...	...	Nil
"	"	"	1/100 c.c. absent in	1/1000 c.c.	6 or 27.3%
"	"	"	1/10 c.c.	" 1/100 c.c.	7 or 31.8%
"	"	"	1 c.c.	" 1/10 c.c.	5 or 22.7%
"	"	"	absent in 1 c.c.		4 or 18.2%

The above 22 samples contained total bacteria per 1 c.c. as follows :

Under 1,000	0
1,000 to 5,000	1
5,000 to 10,000	4
10,000 to 20,000	7
20,000 to 30,000	5
30,000 to 50,000	2
50,000 to 200,000	1
over 200,000	2

" GRADE A " MILK.

Ministry of Health standard :

Agar count not to exceed 200,000 per 1 c.c.

B. Coli absent in 1/100 c.c.

Number of samples examined	...	...	...	...	184
Average Agar count per 1 c.c.	...	...	...	...	4.737
No. of samples with B. Coli in 1/100 c.c.	...	...	...	...	6 or 3.2%
" " " in 1/10 c.c. absent in 1/100 c.c.	...	...	...	...	13 or 7.1%
" " " in 1 c.c. " 1/10 c.c.	...	...	...	...	25 or 13.6%
" " " absent in 1 c.c.	...	...	...	...	140 or 76.1%

The above 184 samples of " Grade A " milk contained total bacteria per 1 c.c. as follows :

Under 1,000	...	...	...	70
1,000 to 5,000	...	...	...	83
5,000 to 10,000	...	...	...	12
10,000 to 20,000	...	...	...	11
20,000 to 30,000	...	...	...	1
30,000 to 40,000	...	...	...	3
40,000 to 50,000	...	...	...	1
50,000 to 200,000	...	...	...	3
over 200,000	...	...	...	0

" CERTIFIED " MILK.

Ministry of Health standard :

Agar count not to exceed 30,000 per 1 c.c.

B. Coli absent in 1/10 c.c.

Number of samples examined	...	...	...	...	45
Average Agar count per 1 c.c.	...	...	...	...	1,813
No. of samples with B. Coli in 1/100 c.c.	...	...	...	...	Nil
" " " in 1/10 c.c. absent in 1/100 c.c.	...	...	...	...	2 or 4.5%
" " " in 1 c.c. " 1/10 c.c.	...	...	...	...	6 or 13.3%
" " " absent in 1 c.c.	...	...	...	...	37 or 72.2%

The above 45 samples of " Certified " milk contained total bacteria per 1 c.c. as follows :

Under 1,000	...	...	...	9
1,000 to 5,000	...	...	...	34
5,000 to 10,000	...	...	...	2
10,000 to 20,000	...	...	...	0
20,000 to 30,000	...	...	...	0
Over 30,000	...	...	...	0

" PASTEURIZED " MILK.

N.B.—This milk although really pasteurized, is sold as ordinary bottled milk without guarantee.

Ministry of Health standard: Agar count not to exceed 100,000 per 1 c.c.

No. of samples examined	...	...	...	...	24
Average Agar count per 1 c.c.	...	...	...	...	12,941
No. of samples with B. Coli in 1/100 c.c.	...	...	...	...	10 or 41·6%
" " " in 1/10 c.c. absent in 1/100 c.c.	...	...	...	...	6 or 25·0%
" " " in 1 c.c. " 1/10 c.c.	...	...	...	...	4 or 16·7%
" " " absent in 1 c.c.	...	...	...	...	4 or 16·7%

The above 24 samples of " Pasteurized " milk contained total bacteria per 1 c.c. as follows :

Under 1,000	...	...	...	1
1,000 to 5,000	...	...	...	10
5,000 to 10,000	...	...	...	3
10,000 to 20,000	...	...	...	6
20,000 to 30,000	...	...	...	1
Over 30,000	...	...	...	3

"Grade A" Milk sold in Bolton has an average agar count of 4,737 against 200,000 allowed by the Ministry, and only 3·2 per cent of the samples failed to pass the B.Coli standard.

" Certified " Milk sold in Bolton has an average count of 1,813 against 30,000 allowed by the Ministry, and only 4·5 per cent. failed to pass the B.Coli standard.

The standards suggested in previous reports :—

" Grade A " Agar count 20,000. B.Coli absent in 1/10 c.c.

" Certified " Agar count 10,000. B.Coli absent in 1/10 c.c.

seem therefore, after the accumulation of further data, to be easily attainable.

PRESERVATIVES.

All samples were examined for preservatives (where such might reasonably be present).

	No. examined	No. containing preservative	Amount and nature of preservative
Milk ...	178	0	—
Cream ...	9	0	—
Potted Meats	27	4	40 parts SO ₂ per million
			51 " "
			74 " "
			100 " "
Crystallised Cherries	1	1	640 " "

ADULTERATED SAMPLES.

			Number Adulterated.	Extent of Adulteration.
Milk	...	8		0·8 % added water
				1·8 % " "
				3·5 % " "
				10·2 % " "
				11·0 % " "
				3·3 % deficient in fat
				9·0 % " "
				16·7 % " "
Sausage	...	1		100 parts of Sulphurous anhydride per 1,000,000

SECTION VI.

Prevalence of, and Control
over, Infectious Diseases.

ACUTE INFECTIOUS DISEASES.

(Notifiable).

The infectious diseases compulsorily notifiable in Bolton are the following :—

Smallpox.	Acute Polio-encephalitis.
Scarlet Fever.	Acute Encephalitis Lethargica.
Diphtheria & Membranous Croup.	Typhus Fever.
Enteric or Typhoid Fever.	Relapsing Fever.
Pneumonia (Acute Primary and Acute Influenzal).	Continued Fever.
Cholera.	Dysentery.
Plague.	Ophthalmia Neonatorum.
Puerperal Fever.	Erysipelas.
Puerperal Pyrexia.	Malaria.
Cerebro-spinal Fever.	Tuberculosis (Pulmonary and other forms).
Acute Poliomyelitis.	

Trench Fever ceased to be notifiable on and after January 1st, 1928.

PREVALENCE AND MORTALITY.

With the exception of scarlet fever, the incidence of infectious disease in Bolton was below the average in 1928.

There was a definite epidemic of scarlet fever. Most of the cases were mild, but cases of a somewhat severe type were not very uncommon.

840 cases of scarlet fever were notified in 1928 as compared with 276 in 1927.

A similar increase in the prevalence of scarlet fever occurred in other parts of Lancashire and in many other parts of England and Wales.

Only one case of scarlet fever ended fatally in Bolton in 1928. In the case of scarlet fever the risk of a fatal termination or of any permanent damage to the patient has been immensely reduced by the use of the comparatively new scarlet fever antitoxin.

The following table shows the number of notifications for each notifiable disease during 1928 and the number of deaths.

NOTIFIABLE DISEASES DURING THE YEAR 1928.

Disease.	Total Cases Notified.	Total Deaths
Smallpox	1	...
Scarlet Fever... ..	840	1
Diphtheria	111	16
Enteric Fever (including Paratyphoid)	5	1
Puerperal Fever	2	3
Puerperal Pyrexia	17	...
*Pneumonia	168	157
Erysipelas	77	9
Ophthalmia Neonatorum	22	...
Encephalitis Lethargica	12	11
Cerebro-spinal Fever	2	3
Acute Poliomyelitis	1	...

* The cases notified are Acute Primary and Acute Influenzal, but the deaths include all forms of Pneumonia.

The notification rate for each disease is the number of notifications of that disease for every thousand inhabitants.

The following table gives the notification rates for 1928 for Bolton and for England and Wales. With the exception of scarlet fever and erysipelas, the notification rates for Bolton are below those for England and Wales.

NOTIFICATION RATES IN 1928.

	Bolton.	England and Wales.
Scarlet Fever	4.63	2.61
Diphtheria ... ..	.61	1.55
Enteric Fever ... ..	.02	.09
Puerperal Fever ... ..	.01	.06
Smallpox ... ..	.005	.32
Puerperal Pyrexia ... ..	.09	.14
Erysipelas ... ..	.42	.42

Smallpox.

One case of smallpox occurred in Bolton in 1928. All the prescribed precautions were taken and no further cases occurred.

I desire once more to thank Dr. Butterworth, the County Medical Officer of Health for his courtesy in acting as consultant in doubtful cases. Dr. Butterworth has seen more smallpox than any other medical man in Lancashire, and in cases of doubt his opinion is very valuable.

Encephalitis Lethargica.

There does not seem to have been any increase in the prevalence of this really terrible disease in Bolton in 1928.

13 cases were notified, and 11 deaths were certified as having been due to encephalitis lethargica. Of the 11 patients who died, 3 had not been notified as suffering from encephalitis lethargica.

The total number of cases of encephalitis lethargica which were brought to the notice of the Bolton Public Health Department in 1928 was therefore 16.

The age and sex distribution of these cases is given in the following table.

Age.	Notifications.		Deaths.	
	Males.	Females.	Males.	Females.
0—1 years
1—2 "
2—3 "	...	I	...	I
3—4 "
4—5 "
5—10 "	I	I	...	I
10—15 "	I	2	...	I
15—20 "
20—25 "	...	I	...	I
25—30 "	I	I	...	...
30—35 "
35—40 "	...	I	...	...
40—45 "
45—50 "
50—55 "	I	...	2	...
55—60 "
60—65 "	...	I	...	2
65—70 "	...	I	2	...
70—75 "
75—80 "	I

As regards the prevention of encephalitis lethargica, medical science is so far quite helpless, and as regards treatment very little progress has been made. No really effective treatment has been discovered.

The most terrible aspect of this disease is not its mortality but the really tragic change it brings about in the mentality of many of those attacked by

it. The after care and control of these patients is a very difficult problem. Some are quite definitely insane, are certifiable as such, and are as adequately provided for as regards institutional treatment by lunatic asylums, as any other insane persons. But for many patients whose mental deterioration is not of such a degree as to justify certification and for whom the necessary care cannot be provided in their homes there is at present no suitable provision. It will probably be found that special institutions will have to be provided for these cases.

Ophthalmia Neonatorum.

The following table gives particulars of all cases that occurred in 1928:—

CASES			VISION.			Deaths
Notified	Treated		Un- impair'd	Impaired	Total Blind- ness	
	At home	In hospital				
22	14	6 as out-patients 2 as in-patients	22	...	...	I

The child that died was 19 weeks old. The cause of death was congenital syphilis, and at the time of death the sight was quite unimpaired.

19 of the cases were delivered by midwives, 2 by doctors, and 1 by a handy woman.

An arrangement has been made with the Bolton Infirmary to admit both mother and child as in-patients if the ophthalmic surgeon considers this advisable.

Unless under treatment at an institution every case of ophthalmia neonatorum is visited every day by the health visitor, and is visited at least once by an ophthalmic specialist. 13 of the cases notified in 1928 were visited at their homes by the ophthalmic surgeon.

Puerperal Fever.

There were five cases of puerperal sepsis in Bolton in 1928, and of these, three died.

Two of these were notified as puerperal pyrexia, and two were not notified before death.

Two of the cases of puerperal fever were removed to Townleys Hospital and one to the Bolton Infirmary. These three patients died.

Further particulars regarding maternal deaths will be found in the Maternity and Child Welfare Section.

The following table gives, in a form asked for by the Ministry of Health, detailed information regarding all cases of notifiable infectious disease in Bolton during 1928.

NOTIFIABLE DISEASES DURING THE YEAR 1928.

Disease.	Cases Notified.														Cases admitted to Borough and other Hospitals.	Deaths.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 35	35 to 45	45 to 65	65 and over	All Ages.	1 to 2	2 to 3			3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 35	35 to 45	45 to 65	65 and over	All Ages.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Smallpox	1</

* The cases notified are Acute Primary and Acute Influenzal, but the deaths include all forms of pneumonia.

How has Bolton fared as regards notifiable infectious disease as compared with other Lancashire towns? This is shown below:

Notification Rates per 1,000 Population in 1928 in Chief Lancashire Manufacturing Towns.

(FIGURES COMPILED FROM THE REGISTRAR GENERAL'S
QUARTERLY RETURNS).

	Total Rate	Scarlet Fever	Diph- theria	Enteric Fever	Puerperal Fever	Puerperal Pyrexia	Ophthal- mia Neona- torum
Blackburn	2'19	'94	'97	—	'08	'07	'13
Wigan	2'44	1'97	'21	'07	'03	'10	'06
Burnley	2'79	1'43	'93	'05	'04	'28	'06
Barrow-in-Furness...	3'19	2'60	'50	'02	'01	'02	'04
Rochdale	3'41	1'94	1'17	'02	'05	'14	'09
Bury	3'48	1'56	1'65	'05	'05	'05	'12
Warrington	3'54	2'32	'88	'01	'08	'22	'03
Oldham	4'34	1'98	2'03	—	'14	'07	'12
Manchester	5'01	2'88	1'59	'04	'16	'08	'26
Salford	5'45	3'29	1'69	'07	'07	'11	'22
Liverpool... ..	5'53	2'50	2'17	'03	'05	'16	'62
Bolton	5'56	4'70	'62	'02	'01	'09	'12
Bootle	5'72	3'51	1'83	'07	'02	'12	'17
Preston	6'68	5'17	1'24	'02	'03	14	'08
St. Helens	11'60	9'82	1'35	—	'09	'17	'17

Note—The Total Rate is the total of the above six notifiable diseases.

The rates have been calculated on the adjusted population at the middle of 1927.

INFECTIOUS DISEASES NOT NOTIFIABLE.

Influenza.

55 Bolton residents died of influenza in 1928. Preventive medicine is still quite powerless to prevent the spread of influenza in epidemic form, and the treatment of severe cases remains very unsatisfactory.

Bolton's influenza deaths from 1916 to 1928 are shown below:—

	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Deaths	18	19	367	301	70	45	122	94	88	98	68	147	55

Whooping Cough.

Nine deaths were due to this disease in 1928.

Measles.

Measles caused 17 deaths in 1928.

Examination of Pathological and Bacteriological Specimens.

These are examined at the Borough Analyst's Laboratory of the County Borough of Bolton. Occasional specimens for which provision is not made in our own laboratory are sent to the Public Health Laboratory, York Place, Manchester.

The examinations made in our own laboratory during 1928 were as follows :—

	Total.	Positive.	Negative.	Doubtful.
Sputum (for B. Tuberculosis) ...	1062	323	738	1
Diphtheria (Throat swabs)... ..	34 ¹	33	303	5
Enteric Fever (Agglutination test)	12	4	8	—

At the Public Health Laboratory, Manchester, the following examinations were made :—

	Total.	Positive.	Negative.
Milk (Inoculation test for B. Tuberculosis)	21	5	16
Sputum (for B. Tuberculosis)	1	1	—
Enteric Fever (Agglutination test) ...	1	—	1
Placenta (for Syphilis)	1	—	1
Fæces (for Typhoid)	1	—	1
Urine (for B. Tuberculosis)	1	—	1

Diphtheria and Antitoxin.

Antitoxin can be had day and night by the medical practitioners of the town. During 1928 there were supplied 96 phials, each of 8,000 units.

Insulin.

Since the 16th September, 1924, the Bolton Public Health Department has supplied insulin free to uninsured patients suffering from diabetes where the income of such patients made it impossible for them to purchase the drug. This has proved a great boon to many sufferers. During 1928, 133 bottles of insulin each containing 100 units, were supplied free, and 296 bottles were supplied at a cheap rate.

Disinfection.

There is a fully equipped disinfecting station at School Hill, near the centre of the town. Two motor vans are attached to this station. During 1928 the following work was done by the disinfecting station :

Houses disinfected	...	...	...	...	1082
Articles of clothing, etc., disinfected	...	...	...	...	5760
Articles of bedding, etc., destroyed	...	...	...	...	287

Cleansing of Verminous Persons.

Arrangements have been made for the bathing of such persons at one of the Corporation's bathing establishments. Clothing is disinfected or destroyed at the School Hill Disinfecting Station.

WORK OF THE BOROUGH HOSPITALS.

Scarlet Fever.

465 cases were admitted to the scarlet fever wards in 1928.

At the 1st of January, 1928 there were 28 patients in the scarlet fever wards who had been admitted in 1927. The total number of cases dealt with in 1928 was therefore 493.

None of these patients died. The exceptional number of adults attacked was a noticeable feature of the epidemic of 1928. The proportion of severe cases which occurred was greater than for some years past. All cases which are not quite definitely mild receive the scarlet fever antitoxin, the effects of which are really wonderful.

Many cases are so mild that it is impossible to be sure whether they have had scarlet fever or not.

The following cases admitted with scarlet fever had other diseases as well :—

Scarlet Fever and Diphtheria	...	...	...	...	6
„ Measles...	...	...	...	...	1
„ Mumps ...	...	...	...	...	1
„ Chorea ...	...	...	...	...	1
„ Pneumonia	...	...	...	...	1
„ Eczema	...	...	...	...	1
„ Whooping Cough	...	...	...	...	1
„ Burns of hands and arms	...	...	...	...	1

Complications.

Some complications of scarlet fever seem to occur in cycles. I have noticed this in the case of otitis media. The exceptional feature of our scarlet fever wards in 1928 was the unusual number of cases of otorrhœa. All cases of otorrhœa are, if it is deemed necessary, seen and treated by Dr. Norman Thornley, nose, throat and ear specialist to the Bolton Infirmary.

Mastoiditis	...	...	...	...	1
Otorrhœa	...	...	...	...	10
Rheumatism	...	...	...	...	1
Albuminuria	...	...	...	...	7

Return Cases.

If in the home of a scarlet fever patient discharged from the hospital there occurs, within four weeks from the date on which the first patient returned home, another case of scarlet fever, then this last case is called a "return case."

We had 5 such return cases in 1928, a very small number indeed.

It must be remembered, too, that the occurrence of these "return cases" by no means proves that they were infected by the original case on its return home. It is not unusual when a case of scarlet fever is removed to hospital to find that a week or more later another case occurs in the same house. This is obviously not a "return case" as the first case is still in hospital. Both cases were probably infected from the same source.

We have found in our hospital, and it has been noticed in all fever hospitals, that the cases most likely to give rise to return cases are those which remain longest in the wards.

It is absolutely impossible to guarantee that any patient discharged from a scarlet fever hospital, or convalescent from scarlet fever in his own home, is incapable of conveying the infection of scarlet fever. Any such patient who contracts a cold and has a running from the nose, may be and frequently is, infectious.

Diphtheria.

80 cases were admitted as diphtheria. Of these cases—

- 4 had diphtheria and scarlet fever.
- 1 had diphtheria and measles.
- 2 had follicular tonsillitis.
- 1 had simple laryngitis.
- 1 had measles.
- 1 had pertussis.
- 1 had thrush.

There were 5 tracheotomies of whom 3 died. In all, 8 patients suffering from diphtheria, died in hospital.

Nearly all the cases that die are sent into hospital with the disease so advanced that antitoxin has no effect. This is not the fault of the doctors. It is nearly always the result of the parents assuming that a sore throat is a minor ailment which can be cured by home treatment.

I repeat here what I have said on many occasions. When a child has a sore throat and is feverish, or looks ill, the doctor should always be sent for. Many parents, as anxious as any to do the best for their children, have paid with the life of a child for an error of judgment in this matter.

Enteric Fever.

One case was admitted, the patient made a good recovery.

Encephalitis Lethargica.

One case was admitted. The patient was removed after some time to Townleys Hospital, where she died.

Hospital Staff.

Miss Bateman, the matron, continues to give to the hospital most able, loyal, and untiring service. I have very great pleasure in giving expression to my appreciation of these services.

I have also to thank the sisters and the whole staff for loyal co-operation.

One case of infectious disease occurred in the Nursing Staff, a case of scarlet fever. This was the only infectious disease in the nursing and domestic staff, and no other serious illness occurred.

Borough Isolation Hospitals.

No. of Patients.	No. of patients suffering from the following Diseases.						Total.
	Scarlet Fever.	Enteric Fever.	Diphtheria.	Pulmonary Tuberculosis.	Other Tuberculous Diseases.	Other Diseases.	
Remaining, Dec. 31st, 1927	28	...	13	19	...	1	61
Admitted in 1928	465	1	74	40	...	7	587
Total No. treated, 1928 ...	493	1	87	59	...	8	648
Discharged in 1928	444	1	70	33	...	7	555
Died in 1928 ... ..	...	...	5	8	...	...	16
Remaining, Dec. 31st, 1928	49	...	9	18	...	1	77

SECTION VII.



Tuberculosis.

TUBERCULOSIS.

For 1928 I am able to record a further fall in the death-rate due to tuberculosis in all its forms.

The tuberculosis death-rate per thousand inhabitants for Bolton in 1928 was '77.

The previous lowest death-rate was '92 in 1926.

The Bolton death-rate from pulmonary tuberculosis alone was for Bolton 1'68 in 1901, that is more than double the present tuberculosis death-rate.

The death-rate for pulmonary tuberculosis (phthisis) in Bolton in 1928 was '66.

The death-rate from tuberculosis of all forms in the Lancashire County Borough in 1928 was as follows:—

Blackpool ...	...	'743	Oldham ...	...	'970
Rochdale ...	...	'771	Burnley ...	...	'983
BOLTON ...	..	'772	Bootle ...	...	1'29
Blackburn ...	...	'824	Manchester...	...	1'29
Barrow-in-Furness ...	...	'834	Wigan ...	...	1'31
Bury ...	...	'861	Liverpool ...	...	1'38
St. Helens ...	...	'95	Warrington...	...	1'39
Preston ...	...	'960	Salford ...	...	1'41

The number of new cases notified in 1928 was:—

Pulmonary ...	...	...	...	...	126
Non-pulmonary ...	...	...	...	...	68
Total ...	...	...	...	...	194

The age and sex distribution of these cases was as follows:—

Notifications.

PULMONARY TUBERCULOSIS.

Ages.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards.	TOTAL.
Males	1	10	9	14	17	5	10	2	68
Females	1	2	9	14	19	5	4	3	1	58

NON-PULMONARY TUBERCULOSIS.

Ages.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards.	TOTAL.
Males	1	5	7	2	4	2	3	4	...	1	...	29
Females	2	5	5	6	5	3	3	4	2	3	1	39

DEATHS FROM TUBERCULOSIS.

The total number of deaths from tuberculosis in 1928 was 140. 53 of these deaths took place in institutions as follows :

- 8 died in the Bolton Borough Hospital.
- 32 died in Townleys Hospital.
- 6 died in the Bolton Infirmary.
- 2 died in Prestwich Mental Hospital.
- 1 died in the County Mental Hospital, Lancaster.
- 2 died in the Wilkinson Sanatorium.
- 1 died in the Royal Manchester Children's Hospital.
- 1 died in the County Mental Hospital, Winwick.

Three of the deaths were of casuals in Townleys Hospital. Technically they are assigned to Bolton, but they were not in any real sense of the word resident.

The age and sex distribution of those who died of tuberculosis are given in these tables :

PULMONARY TUBERCULOSIS.

Sex.	Total	AGES.									
		Under 5	5 to 10	10 to 15	15 to 20	20 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	
Males	63	...	...	...	5	18	13	13	11	3
Females... ..	57	...	...	1	6	30	6	5	8	1
Total	120	...	...	1	11	48	19	18	19	4

NON-PULMONARY TUBERCULOSIS.

Sex.	Total	AGES.									
		Under 5	5 to 10	10 to 15	15 to 20	20 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	
Males	12	3	2	...	2	3	...	...	1	1
Females... ..	8	3	...	...	1	...	2	...	1	1
Total	20	6	2	...	3	3	2	...	2	2	

Only in two cases where death was certified as due to tuberculosis had there been failure to notify the disease during the life of the patients.

PUBLIC HEALTH (PREVENTION OF TUBERCULOSIS) REGULATIONS, 1925.

No action was taken under these Regulations.

Public Health Act, 1925, Section 62.

No action was taken under the above Section during 1928.

TUBERCULOSIS DISPENSARY.

The Dispensary is open every week-day (except Saturday) from 9 a.m. to 12 noon and on Wednesday from 2 p.m. to 5 p.m. The work done at the Dispensary is shown by the following figures:—

Total attendances	1938
Total number of patients sent for consultation ...	227

The result of these consultations were as follows :

Number found to have pulmonary tuberculosis ...	70
Number found to have non-pulmonary tuberculosis...	41
Number of cases kept under observation for suspected pulmonary tuberculosis	—
Number in whom no evidence of tuberculosis was found	116

16 patients had tuberculin treatment. They made a total of 575 attendances.

TREATMENT OF TUBERCULOSIS.

Only special treatments are given at the Dispensary. Practically all treatments the evidence in favour of which justifies it are given a trial.

For suitable cases, institutional treatment is given as follows :

30 beds (and more if needed) at the Wilkinson Sanatorium.

24 beds at the Borough Hospital.

All these beds are for pulmonary cases.

For surgical tuberculosis our present (and inadequate) provision is as follows :

The Bolton Infirmary, where we pay for the treatment of cases referred by this department.

Six beds retained at the Liverpool Children's Hospital at Heswall.

Cases of tuberculosis of the skin are treated at the Manchester and Salford Skin Hospital, and payment for the treatment of such cases, either as in or out-patients, is made by the Bolton Public Health Department. A complete scheme for the treatment of surgical tuberculosis is needed and I am arranging to submit such a scheme at an early date.

Patients whose cases need institutional treatment receive it promptly. Patients on our admission lists are rarely kept waiting more than a week.

130 persons applied for treatment, of whom 100 were suffering from pulmonary tuberculosis and 30 from non-pulmonary tuberculosis.

They received treatment as follows :

Residential treatment	...	...	...	105
Domiciliary treatment	...	...	...	7
Out-patient treatment	...	...	...	9
Declined residential treatment	...	...	...	2
On waiting list at close of 1928	...	...	...	4
Cancelled	...	...	...	3
Died before admission	...	...	...	—

The following table summarizes the residential treatment given during 1928:

ACCOMMODATION PROVIDED BY LOCAL AUTHORITY WITH NUMBER OF
PERSONS ADMITTED FOR TREATMENT DURING THE YEAR 1928.

INSTITUTION.	Beds.	Treated:			Under Treatment 31st Dec. 1928.
		Total	Insured	Un-insu'd	
Wilkinson Sanatorium	30	54	50	4	29
Borough Hospital	24	40	30	10	18
*Heswall	6	7	...	7	6
*Infirmary ... ..	...	9	...	9	1
*Manchester and Salford Hospital for Skin Diseases ... ..	...	8	1	7	...
*Heatherwood Hospital, Ascot ...	...	1	...	1	1

* Paid for per user.

ASSISTANCE GIVEN TO NECESSITOUS TUBERCULOUS PATIENTS.

1. Total number of patients assisted 112
2. Average time receiving assistance ... 3 $\frac{3}{4}$ months
3. Amount of milk given 12,446 pints
4. Malt and oil given 169 lbs.

SECTION VIII.



Venereal Diseases.

VENEREAL DISEASES.

That venereal disease clinics should be required is regrettable; but, that being required, the want is adequately met gives good reason for satisfaction.

The year 1928 shows an increase in the number of patients attending the Clinics and in the number of attendances made by such patients.

There may be some increase in the prevalence of venereal diseases, but the increase in patients and attendances is in the main due to increased and increasing appreciation of the benefits conferred by the Clinics.

The surprising swiftness with which modern methods of treatment of syphilis disperse all signs and symptoms of the disease has this one disadvantage: it causes some patients to regard syphilis as a much less serious disease than they had been led to believe, with the result that they expose themselves with much less hesitation to fresh infection.

The following figures will convey some idea of the amount of work done by the Clinics.

NUMBER OF PATIENTS IN 1928.

Men	...	1024	Women	...	307
-----	-----	------	-------	-----	-----

The disease for which these patients attended were as follows :—

				Men	Women	Total
Syphilis	...	...	...	279	163	442
Soft Sore	...	...	...	4	—	4
Gonorrhœa	...	...	...	575	70	645
Non-venereal	...	...	...	166	74	240
				<hr/> 1024	<hr/> 307	<hr/> 1331

The above figures give the total number of patients who attended the Clinics during 1928. The numbers of new patients who came under treatment for the first time in 1928 were as follows :—

				Men	Women
Syphilis...	...	...	...	111	50
Soft Chancre	...	...	...	2	—
Gonorrhœa	...	...	...	254	26
Non-venereal	...	...	...	156	69
				<hr/> 523	<hr/> 145

Total number of attendances were—Men 10,059; Women 3,148.

492 specimens of blood were taken for the Wassermann test. These specimens were sent for examination to the Public Health Laboratory, Manchester.

109 smears for microscopic examination were taken.

The incubation test for gonococci is now done in our own laboratory by the Borough Analyst, Mr. H. Hurst.

2,379 intravenous and intramuscular injections were given.

Very few members of the public realize to what an extent these Clinics in Bolton and elsewhere are preventing the spread of disease. I am confident that these Clinics are an investment from which future generations will derive enormous benefit.

Particulars of the place and times at which the Clinics are held are as follows:

The times and place where the Clinics are held are announced by public notices in many places in the town. These notices are of a permanent character, being enamelled on iron plates.

Clinics are held at the Treatment Centre established in the Public Health Offices at the following times:—

Monday	7-0 p.m.	} Males.
Tuesday	7-0 p.m.	
Wednesday	7-0 p.m.	
Thursday	7-0 p.m.	} Females.
Saturday	11-0 a.m.	

Patients who are unable to attend the evening clinics can receive treatment during the day by arrangement. Every case which calls for the first time at the Public Health Office receives whatever treatment may be necessary the same day.

Irrigation of cases of gonorrhœa is carried out at the following times:—

FOR MALES.

Monday	10 a.m. and 7 p.m.
Tuesday	7 p.m.
Wednesday	10 a.m. and 7 p.m.
Friday	10 a.m. and 7 p.m.

FOR FEMALES.

Tuesday	10 a.m.
Wednesday	2-30 p.m.
Thursday	2-30 p.m.
Friday	2-30 p.m.

The following table shows the attendances and treatment received by Bolton patients at Treatment Centres in other towns.

	Treatment Centre		
	Manchester	Blackpool	Bury
No. of Patients ...	19	5	2
{ (a) Syphilis ...	6	...	1
{ (b) Gonorrhœa ...	4	2	1
{ (c) Conditions other than Venereal ...	9	3	...
Attendances ...	352	96	26
Doses of Salvarsan substitutes given	32	...	7
Tests—			
Wassermann ...	31	...	...
Gonorrhœa ...	16	...	...
In-patient days ...	...	...	...

The tables on pages 98 and 99 show the work carried out at the Bolton Treatment Centre.

13 medical men applied during 1928 for arsenobenzol compounds and 277 doses were supplied to them for use in their private practices.

249 specimens of blood and 27 smears taken by private practitioners were sent for examination to the Public Health Laboratory, Manchester

RETURN RELATING TO ALL PERSONS WHO WERE TREATED AT THE
TREATMENT CENTRE AT BOLTON PUBLIC HEALTH OFFICES
DURING THE YEAR ENDED THE 31ST DECEMBER, 1928.

	Syphilis.		Soft Chancere.		Gonorr- hoea.		Conditions other than Venereal.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1. Number of cases which—										
(a) at the beginning of the year under report were under treatment or observation for	160	110	2	...	312	42	10	5	484	157
(b) had been marked off in a previous year as having ceased to attend or as transferred to other Centres, and which returned to the Treatment Centre during the year under report suffering from the same infection	8	3	...	...	9	2	...	...	17	5
TOTAL—Items 1 (a) and 1 (b)	168	113	2	...	321	44	10	5	501	162
2 (a). Number of cases dealt with at the Treatment Centre during the year for the first time	111	50	2	...	254	26	156	69	523	145
TOTAL—Items 1 (a), 1 (b) and 2 (a)	279	163	4	...	575	70	166	74	1024	307
2 (b). Number of cases included in item 2 (a) known to have received previous treatment at other Centres for the same infection... ..	14	2	...	...	23	1	...	...	37	3
3. Number of cases which ceased to attend—										
(a) before completing the first course of treatment for	25	10	...	...	136	14	...	...	161	24
(b) after one or more courses but before completion of treatment for	24	13	...	...	...	...	...	...	24	13
(c) after completion of treatment, but before final tests as to cure of	15	7	...	...	33	8	...	...	48	15
4. Number of cases transferred to other Treatment Centres after treatment for	3	...	...	...	6	1	...	...	9	1
5. Number of cases discharged after completion of treatment and observation for	20	7	4	...	50	7	155	61	229	75
6. Number of cases which, at the end of the year under report, were under treatment or observation for	192	126	...	...	350	40	11	13	553	179
TOTAL—Items 3, 4, 5, and 6	279	163	4	...	575	70	166	74	1024	307
7. Out-patient attendances—										
(a) For individual attention by the Medical Officer... ..	2078	1705	18	...	2944	198	476	219	5516	2122
(b) For intermediate treatment, e.g., irrigation, dressings, etc.	107	...	...	...	4436	1026	...	...	4543	1026
TOTAL ATTENDANCES	2185	1705	18	...	7380	1224	476	219	10059	3148
8. Aggregate number of "In-patient Days" of treatment given to persons who were suffering from ... ..	...	...	...	...	...	...	...	...	...	...
9. Examinations of Pathological material :—										
					For Detection of				For	
					Spiro- chetes.	Gono- cocci.	Other Organ- isms.		Wasser- mann Reaction.	
(a) Specimens which were examined at, and by the Medical Officer of, the Treatment Centre ... ..	...	...	...	...	...	178	...	...	...	...
(b) Specimens from persons attending at the Treatment Centre which were sent for examination to an approved laboratory ... ..	...	...	...	...	...	13	...	...	492	...

STATEMENT SHOWING THE SERVICES RENDERED AT THE TREATMENT CENTRE DURING THE YEAR, CLASSIFIED ACCORDING TO THE AREAS IN WHICH THE PATIENTS RESIDED.

[illegible]

SECTION IX.

Maternity and Child Welfare.

MATERNITY AND CHILD WELFARE.

Births.

The number of living children born in Bolton in 1928 was 2,593. This gives a birth-rate of 14.3 per thousand inhabitants as compared with a birth-rate of 15.2 in 1927. It must not be concluded that the birth-rate has fallen since 1927. The Registrar-General's estimate of Bolton population for 1928 is considerably above that for 1927.

104 of the children born were illegitimate, and there were 151 stillbirths.

33 births were not notified. In every such case immediate inquiry is made as to the cause of failure to notify. In no case was there any attempt at concealment of the birth.

Infantile Mortality.

The infantile mortality rate is the number of children under one year of age who die for every 1,000 live births during the year.

Bolton's infantile mortality rate for 1928 was 64. For the same year, that for England and Wales was 65. Bolton's previous lowest infantile mortality rate was 75 in 1927. For the five year period 1891 to 1895, Bolton's average yearly infantile mortality rate was 185.

Of the 15 large towns of Lancashire only one had a lower infantile mortality than Bolton in 1928.

Maternal Deaths.

Maternal mortality is the now generally accepted designation for the mortality in women due to the accidents and dangers of pregnancy and childbirth.

The figure which expresses the maternal mortality is the number of women dying from the above stated causes per 1,000 live births.

There are different methods of expressing maternal mortality, and for this reason and also by reason of differences in registration, the maternal mortality figures for foreign countries are in most cases not comparable with those for England and Wales and Scotland. The figures for Holland are regarded as reliable and comparable.

The number of maternal deaths in Bolton in 1928 was 8.

Of these deaths 1 occurred during pregnancy in its earlier stages.

3 died of puerperal sepsis.

4 died of other conditions arising out of childbirth.

The maternal death-rate of Bolton in 1928 was therefore as follows

From puerperal sepsis	...	...	...	...	...	1·15
From other accidents of childbirth	...	...	...	...	...	1·54
From conditions arising during the earlier stages of pregnancy	...	...	...	...	...	·38

Bolton's total maternal death-rate for 1928 was therefore 3·08,

The corresponding figure for England and Wales is 4·43.

If we confine ourselves to deaths arising out of childbirth, and most maternal mortality rates are restricted to these cases, then Bolton's maternal death-rate for 1928 was 2·7.

The Ministry of Health restricts the term maternal deaths to deaths arising out of childbirth.

In last year's report I gave a full account of all that is being done in Bolton to help women in childbirth, and to prevent as far as possible these tragic deaths. We are doing all that the Ministry of Health has recommended.

Our ante-natal clinics are being more and more appreciated, and the attendance at them increases steadily. Arrangements are being made to increase the facilities afforded by these clinics.

What is the most essential factor in the prevention of maternal deaths?

Ante-natal care and skilled attendance at and after childbirth. All the investigations which have been carried out in this country lead to the above conclusion. I indicated in last year's report how in my opinion an improvement should be effected in the skilled treatment of childbirth and in many responsible quarters reforms practically identical with those put forward by me have been advocated.

Full details of all the maternal deaths are given in the following table. The cause of death is that given on the death certificate.

DETAILS OF MATERNAL DEATHS IN 1928.

Cause of Death	Occupation	Domestic Environment	Previous Pregnancies	Delivery	Nursing	Remarks
Abortion	Housewife	Good	Twelve—five living—four stillborn	Nil	Hospital	Four months gestation
Difficult and prolonged labour	Housewife	Good	Nil	Doctor	Own home	Went on holiday against urgent advice of doctor. Membranes ruptured whilst away from home—Stillborn
Cæsarean section	Housewife	Fair	One—stillborn	Doctor	Hospital	An epileptic who was also paralysed—Healthy baby.
Post-partum sapræmia	Banding maker at rope works	Good	Nil	Nil	Hospital	Illegitimate, never admitted pregnancy.
Puerperal fever	Housewife	Satisfactory	Two—normal	Midwife	Own home and Hospital	Healthy child.
Septicæmia incomplete abortion	Housewife	Satisfactory	Eight—seven living	Nil	Hospital	
Pblegmiasia alba dolens	Housewife	Very good	Nil	Doctor	Own home	Stillborn.
Pulmonary embolism, 6 hours after confinement	Card tenter in cotton mill	Poor	One—abortion	Midwife	Mother's Home	Premature twins

Neo-natal Mortality

The mortality of the first four weeks of life is called neo-natal mortality.

The neo-natal mortality is very largely due to causes which have been at work before birth, and the study of these causes is of great importance from the point of view of ante-natal care.

Bolton's neo-natal mortality rate for 1928 is much the lowest we have yet had.

BOLTON'S NEO-NATAL MORTALITY-RATE PER 1,000 BIRTHS.

Year.	Rate.	Year.	Rate.
1905	46·8	1917	49·8
1906	36·7	1918	38·9
1907	44·6	1919	40·3
1908	37·3	1920	38·9
1909	45·4	1921	41·2
1910	36·7	1922	43·0
1911	43·2	1923	37·6
1912	38·7	1924	35·5
1913	41·7	1925	32·8
1914	45·8	1926	43·7
1915	37·8	1927	36·2
1916	40·1	1928	25·8

The causes of death during the first four weeks of life were as follows:—

Deaths under Four Weeks.

CAUSES OF DEATH.	Under 7 days	7 and under 14 days	14 and under 21 days	21 and under 28 days	Total under 28 days
Icterus Neonatorum	—	—	—	—	—
Convulsions	2	—	1	—	3
Bronchitis	—	—	1	—	1
Pneumonia (all forms)	—	—	—	2	2
Diarrhoea	—	—	—	—	—
Enteritis	—	—	—	1	1
Syphilis	—	—	—	—	—
Suffocation... ..	1	—	—	—	1
Injury at Birth	2	—	1	—	3
Atelectasis	1	—	—	—	1
Congenital Malformations	2	3	3	—	8
Premature Birth	20	6	3	3	32
Atrophy, Debility and Marasmus	7	—	—	2	9
Other Causes	5	1	—	—	6
Totals	40	10	9	8	67

The Health Visitors' Work.

The Health Visitors have done excellent work during the year. The total of the home visits paid by them during the year was 19,856. These visits fall under the following heads:—

VISITS BY HEALTH VISITORS.

Primary birth enquiries	2607
Visits to Children, 1—5 years	4107
Primary visits to expectant mothers	644
Revisits to infants under 1 year	8813
Revisits to children, 1—5 years	1879
Revisits to expectant mothers	922
Visits to Puerperal Fever Cases	13
Visits to Ophthalmia Cases	446
Death enquiries made	162
Visits to midwives' houses	263
Total visits	19856

2,492 living infants were visited by the Health Visitors who found that the feeding of these infants was as follows:

					Died under 1 year
1. Breast fed only—1904	...	...	...	...	55
2. Breast fed partially—247	...	...	...	...	30
3. Artificially fed—341	...	...	...	...	75

The report of the Health Visitors on the general condition of the above infants was as follows:—

2296 were healthy,
102 were delicate,
94 were premature.

Of the houses visited 2,378 were reported to be clean and 190 dirty.
30 nuisances first reported by the Health Visitors were dealt with.
2,684 leaflets were left at the homes when visited.

Assistance given to Expectant and Nursing Mothers and Children under 5 years of age.

32,138 quarts of new milk were given to 674 persons.

1,423 lbs. of dried milk were given for the use of 119 infants.

789 lbs. of malt and oil and 224 lbs. of Virol were given to 220 children.

In each of these cases the home is visited by the Health Visitor, and the case is kept under observation. Cases not under a private doctor are required to attend the infant clinics in order that the child's progress may be carefully watched.

Two applications were received for home helps and both were granted.

Infant Clinics and School for Mothers.

In this work the Bolton Public Health Authority and the Bolton School for Mothers co-operate.

The co-operation has proved very successful and much credit is due to the voluntary workers for their valuable assistance. The centres afford an admirable opportunity for spreading a knowledge of mothercraft in Bolton and much instructive literature, very much appreciated by the mothers, is distributed at them.

There are eight infant welfare centres.
particulars of their work.

The following tables give

NAME AND ADDRESS OF CENTRE.	DAY AND TIME OF MEETING.		
The Friends' School Room, Tipping Street	...	Monday	3 p.m.
St. Matthew's Mission Room, James Terrace	...	Monday	3 p.m.
Halliwell Road Free Church	Tuesday	3 p.m.
Victoria Wesleyan School, Grecian Crescent	...	Tuesday	3 p.m.
Girls' Club, Kensington Street	Wednesday	3 p.m.
St. Chad's School, Belvoir Street	Wednesday	3 p.m.
The Saviour's Church House, Deane Road	...	Thursday	3 p.m.
Peace Street Primitive Methodist School	Thursday	3 p.m.

The attendances at the clinics during 1928 were as follows :

			New Members	No. on Roll	Total Attendances	Meetings	Average Attendance
1. Tipping Street	...	...	198	326	2240	43	52·1
2. Peace Street	...	...	178	266	2225	44	50·5
3. Halliwell	...	...	185	319	2304	43	55·9
4. Grecian Crescent	...	...	118	206	1756	44	40·8
5. Kensington	...	...	191	271	1805	44	41·0
6. Saviour's	...	...	92	169	1309	44	29·7
7. James Terrace	...	...	136	206	1298	43	30·1
8. St. Chad's	...	...	132	212	1873	44	42·5
			1230	1975	14850	349	342·6

All the Centres as the above figures show are in a flourishing condition.

The ages of the new members enrolled at the Centres were as follows:

Under one month	...	...	...	...	250
„ two months	...	...	...	...	344
„ three months	...	...	...	...	135
„ six months	...	...	...	...	153
„ twelve months	...	...	...	...	112
Twelve months and over	...	...	...	...	236

Ante-natal Work.

This work is being more and more appreciated and the number of mothers attending the clinics is steadily increasing.

Two ante-natal clinics are conducted by Dr. Mary Boullen, our maternity and child welfare doctor.

One clinic is held on the premises of the School for Mothers in St. George's Road, at 3 p.m., on Tuesdays. 136 mothers attended this clinic during the year.

The other clinic is held at the Haslam Maternity Home, on Friday, at 3 p.m. All expectant mothers on the admission list of the Haslam Maternity Home attend, except such as are having ante-natal care from their own doctor.

These clinics are doing excellent work, and there is no doubt that they will greatly increase.

Massage.

Thanks to the Bolton Education Authority the Massage Clinic is accommodated in very suitable premises at Flash Street School.

Mrs. Ernest Mallett who had done the work of the clinic as a voluntary worker for many years was obliged to give it up as she was leaving the town. We owe her a deep debt of gratitude for her able and cheerful assistance and all connected with the clinic very much regret her retirement.

The work of the clinic is now done by Miss M. L. Bruckshaw, C.S.M.M.G., whose services are paid for by the Public Health Authority.

At the clinic 1,435 massage treatments were given during 1928. Treatment is only given on the recommendation of one of the Medical Officers of the Infant Clinics. There is no doubt that many cases derive great benefit.

Work of Nurses employed by the School for Mothers.

The School for Mothers employs two nurses who visit the homes of children attending the infant clinics for purposes of supervision and advice. I am supplied with weekly lists of their visits and there is no overlapping between their work and the work of the health visitors. These two nurses paid 3,176 visits during the year.

Artificial Sunlight Clinic.

This clinic is held three times a week on the premises of the School for Mothers in St. George's Road. The clinic is supervised by Dr. Mary Boullen, and the operator is Miss Charnock, C.S.M.M.G.

Treatment is only given on the recommendation of the Medical Officers of the Infant Clinics. During 1928 the number of treatments given was 1,213.

On its results there is now no doubt that the clinic has justified itself. Artificial sunlight is not a cure-all, and in the early days of its vogue claims were made for it which are now known to be quite unjustified. Its use as a therapeutic agent is still largely experimental, but for certain conditions it has definitely been shown to be very valuable.

I append the report of Dr. Mary Boullen, the medical officer of the clinic.

ARTIFICIAL SUNLIGHT CLINIC.

Report by Dr. Mary Boullen.

Treatment at the clinic was limited, as in 1927, to children under the age of five years, and the results of treatment given in 1928 differ only slightly from those of the previous year, thus confirming the former report.

65 new cases were treated during the year, the time of exposure starting, in most cases, at 3 minutes and gradually increasing to 30 minutes; the clinic being open three times weekly.

The average number of treatments for each child was 18, but as a considerable number of the mothers flagged in their attendance after the first two or three weeks, those children who were perseveringly brought till they were discharged received many more treatments than 18.

It was found, during the year, that long-continued attendance with moderate exposures gave better results than attendance over a short period with more rapidly increasing exposures. Those who were discharged after a shorter course frequently relapsed and returned for more treatment, while those who continued longer showed less tendency to require more exposures.

21 cases of rickets were treated, and showed considerable improvement, but it must be remembered that these were also taking cod liver oil. 6 were only mild cases.

The more severe cases of rickets were also given cod liver oil, but in addition to this, received treatment at the massage clinic instead of the artificial sunlight clinic, as it was found that the mothers could not spare the time for both, and the massage proved more beneficial for the deformity and weakness of the severe cases.

21 cases of debility were treated, about one-third of these being cases following the diseases of childhood. The latter did exceptionally well; appetite, weight, and capacity for sleep improving considerably.

The cases of general debility improved but there was a tendency to relapse after the cessation of treatment. On the whole, however, the results of these were satisfactory.

No cases of eczema attended, the results of the previous year having proved unsatisfactory.

Several cases of enlarged cervical glands were treated. Those who persisted in their attendances did excellently, the enlargement slowly disappearing, though about 35 exposures were found necessary for these cases.

Of two cases of recurrent bronchial catarrh, one was apparently cured; the other showed no improvement, and no gain in weight.

A severe case of splenic anæmia showed slight improvement, but eventually died of intercurrent disease.

Many of the ten cases of babies suffering from marasmus and malnutrition were disappointing as the mothers ceased to bring them after the first few times. Most of those who attended regularly, however, showed marked improvement, and after they began responding to the treatment gained weight rapidly.

It is often difficult to determine exactly how much benefit is due to the artificial sunlight itself and how much to the general advice on hygiene and feeding which is given to the mothers at the infant clinics and which encourages them to spend more care and thought on the babies.

Taking everything into consideration, however, the clinic continues to justify its existence, and although some of the mothers cease attendance—owing in many cases to domestic cares and ties—those who do attend regularly are appreciative of the improvement in the condition of the children and are satisfied with the results of treatment.

HASLAM MATERNITY HOME.

The Haslam Maternity Home has won in a high degree the confidence of the Bolton people and the affection of all who have been its patients.

We have freed ourselves from the infectious disease, pemphigus neonatorum, which for a time put such a terrible strain on all connected with the Home and greatly interfered with its usefulness. Most maternity homes are visited by this disease. Although we have got rid of this disease there is no relaxation of the measures taken to prevent infection of any sort entering the Home.

The number of patients seeking admission to the Home is steadily increasing. If this increase continues it will soon be necessary to extend our accommodation if we are to admit all who desire to avail themselves of the services of the institution. In addition to the probable shortage of beds in the near future we are already at the present time greatly hampered by inadequate accommodation for the staff. The solution of the problem will probably have to be postponed until the transfer of the Poor Law institutions has taken place.

I have pleasure in recording once more my appreciation of the valuable services of Miss Evans, our excellent matron. She never spares herself in her devotion to her work. She has been loyally supported by the staff of the Home.

Dr. Mary Boullen visits the Home almost daily and her supervision is very valuable. I make frequent visits myself.

308 cases were admitted to the Home in 1928 as compared with 242 in 1927.

There is no fixed fee for the service of the Home. The fee is determined by the means of the applicant.

Full particulars of all cases admitted in 1928 are appended.

STATISTICS 1928.

1. Total number of cases admitted...	...	...	...	...	308
2. Average duration of stay in days	...	...	...	...	13·6
3. No. of cases delivered by—					
(a) Midwives	...	...	...	...	244
(b) Doctors	...	...	...	...	58

4.	No. of cases in which medical assistance was sought by the midwife with reason for requiring assistance	...	...	57
(a)	Ante-natal	...	...	11
	Heart disease	...	...	2
	Rise of temperature	...	...	1
	Albuminuria	...	...	4
	Swollen legs	...	...	1
	No foetal heart sounds	...	...	2
	Fibroids on uterus	...	...	1
(b)	During labour	...	...	9
	Albuminuria	...	...	1
	Prolapsed cord	...	...	1
	Abscess of the breast	...	...	1
	Tedious labour	...	...	4
	General condition unsatisfactory	...	...	1
	Delayed vertex	...	...	1
(c)	After labour	...	...	22
	Ruptured perineum (all sutured)	...	...	15
	Inverted nipples...	...	...	1
	Puerperal mania	...	...	1
	General condition unsatisfactory	...	...	2
	Mastitis	...	...	1
	Severe cough	...	...	1
	Nephritis...	...	...	1
(d)	For Infant	...	...	15
	Spina bifida	...	...	2
	Malformation	...	...	2
	Discharging eyes	...	...	5
	Melæna	...	...	1
	Congenital heart disease	...	...	1
	Convulsions	...	...	2
	Weakly twins	...	...	1
	Cyanosed	...	...	1
5.	No. of cases notified as puerperal sepsis with result of treatment in each case	...	...	Nil
6.	No. of cases notified as puerperal pyrexia	...	...	Nil
7.	No. of cases of pemphigus neonatorum...	...	...	10
8.	No. of cases notified as ophthalmia neonatorum, with result of treatment in each case	...	...	Nil
9.	No. of "Inflammation of eyes" however slight	...	...	9

10.	No. of Infants not entirely breast fed whilst in the institution with reasons why not breast fed	...	...	...	...	8
	Baby weaned on 10th day, going to foster mother...	...	...	...	...	1
	Mother's condition unsatisfactory	...	...	...	...	3
	Baby too ill to move about	...	...	...	...	1
	Mother's milk insufficient...	...	...	...	...	3
11.	No. of maternal deaths, with causes	...	...	...	...	Nil
12.	No. of foetal deaths (stillborn or within 10 days of birth) and their causes, and the results of the post-mortem examinations, if obtainable	...	...	...	...	23
(a)	Stillbirths	...	...	...	...	20
	Prolapsed cord	...	...	...	...	1
	Mother had fall and premature rupture of membrane	...	...	...	...	1
	Albuminuria	...	...	...	...	1
	Hæmorrhage five weeks before birth	...	...	...	...	1
	Macerated and premature	..	...	...	...	6
	Green liquor amnii	...	...	...	...	1
	Mother had heart disease	...	...	...	...	1
	Positive Wassermann	...	...	...	...	1
	Monstrosities	...	...	...	...	2
	Mother's condition poor, aged 49 years	...	...	...	...	1
	Difficult forceps delivery	...	...	...	...	1
	Unknown	...	...	...	...	2
	Premature, B.B.A.	...	...	...	...	1
(b)	Deaths within 10 days of birth	...	...	...	...	3
	Atelectasis	...	...	...	...	1
	Premature twins	...	...	...	...	2
	No post-mortem examinations were made.					

The Haslam Maternity Home has now established itself as an institution indispensable to the welfare of Bolton,

BOLTON DAY NURSERY.

1928 was for the Bolton Day Nursery a year in which the increasing appreciation of the institution was shown by a considerable rise in the number of children attending it.

As I have said in previous reports the institution is extremely well conducted. It is watched over by able and enthusiastic voluntary workers who deserve great credit for the benefits they have conferred on many of Bolton's children.

If day nurseries were not of necessity rather expensive institutions, and Bolton's Day Nursery is no more expensive than well-conducted day nurseries in other parts of the country, there is no doubt that Bolton would by now have had more than one.

The Day Nursery is much indebted to Dr. Falconer, its honorary physician, for his valuable services to the children.

The Day Nursery is open from 7 a.m. to 5-30 p.m. from Monday to Friday, and from 7 a.m. to 1 p.m. on Saturdays. A charge of 1/- is made for a whole day's attendance and 6d. for Saturday.

Particulars of attendances at the Nursery are given in the following table: —

STATISTICS FOR THE YEAR ENDED 31ST DECEMBER, 1928.

Attendances...

Whole day under 3 years	...	...	3895
Whole day 3 years and over	...	...	1869
Total whole day	...	...	5764
Half day under 3 years...	...	...	527
Half day 3 years and over	...	...	191
Total half day	...	...	718
Average for the year—whole day...	...	...	23·1
half day	...	...	15·2
Number of days open { whole day...	...	...	249
during year ... { half day	...	...	47
Average number of attendances per child			58·2

The total attendances numbered 6,482 in 1928 as compared with 4,185 in 1927.

CONTROL OF MIDWIVES.

During 1928 the number of midwives who notified their intention to practise in Bolton was 82. Of them eight were resident members of the staff of the Haslam Maternity Home.

The following table gives details of the Midwives' work :—

	Trained.	Untrained.	Total.
No. of midwives... ..	78	4	82
No. of cases delivered	2370	40	2410
Av. no. of cases per midwife	31	5	29
No. of calls for medical aid	442	2	444
Per cent of cases in which medical aid was sought	18%	5%	18%
No. on the Register at the beginning of the year		...	75
No. who ceased to practise in Bolton ... ..	...	...	6
No. who notified their intention to practise in Bolton for the first time ... ..	...	...	15
No. on the Register at the end of the year		...	76
Names voluntarily removed from Roll ... ..	...	...	1

The following 589 notifications were received from midwives in accordance with the regulations of the Central Midwives Board :—

Medical assistance	444
---------------------------	-----

CONDITIONS FOR WHICH DOCTORS WERE SUMMONED IN AN EMERGENCY BY MIDWIVES.

PREGNANCY	59
Abortion or threatened abortion	11
Convulsions	6
Ante-partum hæmorrhage	16
Deformity or stunted growth	11
Puffiness of hands or face	5
Excessive sickness	3
Other conditions	7

LABOUR	254
Delayed, complicated or obstructed labour	110
Ruptured perineum	97
Malpresentation	19
Retained placenta	11
Excessive bleeding	5
Weakness	7
Other conditions	5
PUERPERIUM	28
Rise of temperature	19
White leg	1
Unusual swelling of breasts	3
Offensive lochia	1
Other conditions	4
INFANTS	103
Feebleness, etc.	34
Inflammation of eyes	34
Skin eruptions	8
Malformation	15
Convulsions	6
Melæna	2
Jaundice	2
Other conditions	2
	444
Stillbirths	110
Artificial feeding	28
Death of mother or child	3
Laying out of dead body	2
Liability to be a source of infection	2

2,410 cases out of a total of 2,593 births registered were attended by midwives.

The Local Authority neither employs nor subsidizes any practising midwives.

For knowledge of their work and for conscientious discharge of their responsible duties, I am confident that the midwives of Bolton will stand comparison with those of any other area in the country.

The work done by midwives is of a very responsible and anxious nature; but the remuneration of midwives is in the great majority of cases miserably inadequate. A great improvement in the status of the midwife as regards professional training and pecuniary remuneration is earnestly to be desired.

Lectures to Midwives.

During the Winter season 1928-9 a Course of Seven Lectures for Midwives was arranged by the Public Health Department. These lectures were much appreciated and the attendance at them was very good.

The lectures and the subjects were as follows—

Dr. K. Vernon Bailey	...	The Hæmorrhages of Pregnancy.
Dr. William Rolland	...	Delayed Labour.
Dr. Robert Cranna	...	Ante-natal Care.
Dr. K. Vernon Bailey	...	Delayed and Obstructed Labour.
Dr. K. Vernon Bailey	...	Puerperal Sepsis.
Dr. K. Vernon Bailey	...	Ante-natal Work.
Dr. Catherine Chisholm	...	Septic Affections of the Newly Born.

REGISTRATION OF NURSING HOMES (INCLUDING MATERNITY HOMES).

There are four Nursing Homes registered under the Nursing Homes Registration Act of 1927 at the time of writing (24-5-29).

At the close of 1928 there were five, but one has since been cancelled owing to the keeper leaving the district.

Bye-laws under the new Act have not yet been made.

SECTION X.



Miscellaneous.

Queen's Park Observatory, Bolton.**WEATHER SUMMARY FOR 1928.**

The Barometric Mean for the year was slightly below normal, due to unusually low pressures in January and November. All temperatures were slightly higher; the average mean being $.8^{\circ}$ in excess of the long average. During the first four months of the year, and also for November, the monthly means were approximately 2° above normal. On the other hand June showed a deficiency of 2° . Rainfall was only 1" above the 1887-1928 average in spite of the January total being 11.334" compared with an average of 4.033". This is the heaviest rainfall recorded for January in the past 97 years. June was also a particularly wet month with 6.580" (average 2.858"). September was remarkably dry, only a quarter of the usual rainfall being recorded. There was a fall of exceptional intensity on October 9th which caused much flooding in the district. Rain fell on 214 days with a duration of 842.7 hours, 61 hours below; whilst sunshine records show just 100 hours more than the 41 years average, the month with the most conspicuous increase (34 hours) being July. In the year's total duration there is an increase of 13 hours. The most marked deviation from normal in the wind factor is an increase of 300 hours in the winds from the NE, at the expense of those of a northerly type. A gale reaching an intensity of 34 miles per hour occurred on November 26th. Frost in the shade was recorded on 27 days and 13 thunderstorms were noted, that of February 10th being unusually severe.

THOS. MIDGLEY, F.R.Met.S.

Meteorological Summary for 1928.

1928	Mean Pressure of Barometer at Sea Level	Mean Relative Humidity	Mean of Maximum and Minimum Temperature	Absolute extremes of Temperature.				Sunshine.			Total Rainfall
				Highest	Date	Lowest	Date	Total Amount	Maximum in one day	Date	
January	29.777"	92.2%	40.59°	53.1°	21	27.6°	27	hours 23.6	5.6	27	11.334"
February	30.017	88.7	41.57	54.1	15	29.6	26	33.6	5.8	27	5.376
March	29.792	87.0	42.08	60.2	4	25.9	12	48.7	5.8	27	2.473
April	29.799	72.8	46.26	72.0	26	26.7	23	97.1	9.5	24	1.024
May	29.984	70.1	50.10	73.5	30	32.3	10	114.7	12.0	4	1.221
June	29.880	76.4	53.07	73.2	3	37.0	15	157.0	13.9	2	6.580
July	30.060	75.4	57.55	77.4	14	43.7	8	183.1	14.0	15	2.938
August	29.898	78.6	58.38	76.2	5	44.6	2	124.5	10.5	8	5.766
September	30.140	76.9	53.76	75.0	5	36.5	20	104.4	7.9	14	8.43
October	29.789	87.6	43.10	66.7	8	29.9	1	65.9	6.7	4	6.092
November	29.733	87.7	44.94	62.1	12	29.0	4 & 10	31.8	4.7	26	6.833
December	30.037	91.0	38.40	52.9	25	23.8	15	23.1	5.0	8	3.564
Total	358.906	98.4	57.543					1007.5			54.044
Averages	29.969	82.0	47.95					84.0			4.504

	Mixed Bathing	Swimming Baths			Slipper Baths		Needle Baths	Vapour Baths	Con-tracts	Total Bathers	Corres-ponding period last year	No. using Wash-houses	Corres-ponding period last year
		4d.	3d.	2d.	8d.	6d.							
Moss St. Baths & Wash-houses...	4833	30772	3469	37514	3915	10803	...	...	35387	126693	117661	25092	25733
Bridgman St. Baths	4027	17015	1232	20582	5050	4209	...	390	15708	68813	61403	...	...
High St. Baths	2108	13284	1407	18385	2096	5179	13	182	21250	63904	50054	...	...
Total	11568	61071	6108	76481	11061	20191	13	572	72345	259410	229118	25092	25733

: 125.

Turkish Baths. 12 months ended 31st March, 1920.

	Turkish Baths			Slipper Baths		Medi-cated Baths	Total Bathers	Corres-ponding period last year
	1st Class	2nd Class		1st Class	2nd Class			
Turkish Baths	2367	1469		330	469	29	4855	5471

Corporation Horses.

REPORT ON THE INSPECTION AND TREATMENT OF HORSES
BELONGING TO THE CORPORATION.

The following statement shows the total number of Corporation horses on the 31st December, 1928; the Committees to which they belong; and the total visits of inspection for the purpose of treatment of horses for various ailments during the year.

Committee					Number of Horses	Visits of Inspec- tion during 1928
Cleansing and Sewage	...	...	...	...	47	32
Streets	...	...	...	...	3	3
Gas	...	...	...	...	3	11
Parks	...	...	...	...	1	3
Cemetery	...	...	...	...	2	4
Waterworks	...	...	...	...	2	10
Education	...	...	...	...	2	2
Total	...	...	...	...	60	65

During the year four horses were submitted to veterinary inspection and examination prior to consideration of purchase by the Cleansing and Sewage Committee.

**THE FOLLOWING CIRCULAR LETTERS, ETC.,
WERE SENT OUT DURING 1928.**

- 7/1/28 17 letters to slaughter-house keepers advising butchers to thoroughly cleanse and disinfect slaughter-houses or lairs, also the implements used and clothes worn by butchers.
- 11/1/28 132 leaflets issued by the Ministry of Agriculture and Fisheries giving advice to farmers on foot and mouth disease sent to all farmers and butchers in the Borough.
- 9/2/28 63 letters to medical practitioners enclosing Circular No. 826 of the Ministry of Health, dated 28th December, 1927, on the subject of cancer of the uterus.
- 10/7/28 55 letters to medical practitioners explaining enclosed copies of the Regulations made by the Ministry of Health, dated May 25th, 1928, dealing with the altered procedure in regard to the notification of cases of puerperal pyrexia and ophthalmia neonatorum.
- 20/9/28 122 similar leaflets forwarded to farmers etc., as were forwarded on the 11/1/28.
- 3/11/28 212 letters to farmers, corn and provision merchants, etc., calling attention to, and giving advice re Rat Week.
- 10/11/28 78 letters to medical practitioners enclosing a copy of an enquiry form regarding maternal deaths together with an explanatory note drawn up by Sir George Newman, Chief Medical Officer of the Ministry of Health.
- 7/12/28 80 letters to medical practitioners drawing attention to the fact that diphtheria antitoxin, when required for persons insured under the National Health Insurance Act, must be procured from a chemist on the ordinary prescription, and that it cannot be supplied for insured persons by the Public Health Department.
- 12/12/28 124 copies of the Anthrax Order of 1928, dated August 28th, 1928, of the Ministry of Agriculture and Fisheries, sent to all farmers, etc.

SECTION XI.



Appendix.

[illegible]

List No.	CAUSES OF DEATH.	Total	SEX.		AGE.														
			M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40			
42	Other infectious diseases...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1-42	Epidemic, Endemic and In- fectious diseases ...	271	134	137	18	11	13	2	6	13	2	17	26	14	22	14			
43-49	Cancer, Malignant disease ...	245	119	126	...	...	...	1	...	...	...	...	...	2	2	4			
43	Buccal cavity ...	12	12	...	...	...	...	...	...	...	...	...	...	...	...	...
44	Pharynx, œsophagus, stomach, liver and annexa ...	89	50	39	...	...	...	...	...	...	...	...	...	1	...	1			
45	Peritoneum, intestines and rectum ..	47	27	20	...	...	...	...	...	...	...	...	...	...	...	1			
46	Female genital organs ...	34	...	34	...	...	...	...	...	...	...	...	...	1	2	2			
47	Breast ...	20	...	20	...	...	...	...	...	...	...	...	...	...	...	...
48	Skin ...	4	3	1	...	...	...	...	...	...	...	...	...	...	...	...
49	Other or unspecified organs ...	39	27	12	...	...	...	1	...	...	...	...	...	...	...	...
50	Tumours, not returned as malignant (brain and female genital organs excepted) ...	7	5	2	...	1	...	...	...	...	...	...	1	...	...	...
51	Rheumatic fever ...	28	10	18	...	...	...	...	...	1	4	3	1	5	4	...			
52	Chronic rheumatism, osteo- arthritis, gout ...	14	8	6	...	...	...	...	...	...	...	...	...	...	...	...
	1. Chronic rheumatism, chronic arthritis ...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Rheumatoid and osteo- arthritis ...	10	4	6	...	...	...	...	...	...	...	...	...	...	...	...
	3. Gout ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
53	Scurvy ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
54	Pellagra ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	Beri-beri ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
56	Rickets ...	5	2	3	2	1	1	...	1	...	...	...	...	...	...	...
57	Diabetes ...	20	9	11	...	...	...	...	...	1	1	...	1	2	...	...	
58	Anæmia, chlorosis ...	21	11	10	...	...	1	...	...	...	...	...	1	...	...	1			
	(a) Pernicious anæmia ...	20	10	10	...	...	...	...	...	...	...	...	1	...	...	1			
	(b) Other anæmias and chlorosis ...	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...
59	Diseases of the pituitary gland ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1			
60	Diseases of the thyroid gland ...	10	2	8	...	...	1	...	...	...	...	...	...	...	...	2			
	(a) Exophthalmic goitre ...	9	1	8	...	...	...	...	...	...	...	...	...	...	...	2			
	1. Myxœdema ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Cretinism ...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...
	(b) 3. Other diseases of the thyroid gland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
61	Diseases of the parathyroid glands ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1. Tetany ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Other diseases of the parathyroid gland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62	Diseases of the thymus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
63	Diseases of the adrenals ...	2	1	1	...	...	...	...	...	...	...	...	...	1	...	...	
64	Diseases of the spleen ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65	Leukæmia, lymphadenoma ...	6	1	5	...	...	...	...	...	...	...	1	1	...	...	...
	(a) Leukæmia ...	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...
	(b) Lymphadenoma (Hodgkin's disease) ...	2	1	1	...	...	...	...	...	...	...	1	1	...	...	...
66	Alcoholism (acute or chronic) ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
67	Chronic poisoning by mineral substances ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
68	Chronic poisoning by organic substances ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
69	Other general diseases ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1. Purpura ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Hæmophilia ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	3. Other diseases included under 69 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total General Diseases ..	630	302	328	20	13	16	3	7	14	7	22	30	23	30	22			

65	72	51	27	13	1	59	571	27	35	94	47	12	73	28	44	11	64	22	10	26	64	11	29	33
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List No.	CAUSES OF DEATH.	Total	SEX.										AGE.									
			M.	F.	0	1	2	3	4	5	10	15	20	25	30	35	40	45				
					to 1	to 2	to 3	to 4	to 5	to 10	to 15	to 20	to 25	to 30	to 35	to 40	to 45					
	Diseases of the Nervous System and Sense Organs.																					
70	Encephalitis	2	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...
	1. Cerebral abscess ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Other diseases included under 70	2	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...
71	Meningitis	10	7	3	4	...	...	...	...	2	...	...	...	...	...	...	...
72	Tabes dorsalis (locomotor ataxy) ...	5	3	2	...	...	...	...	...	...	...	...	...	...	...	...	...
73	Other diseases of the spinal cord ...	8	5	3	...	...	...	...	...	...	1	2	...	1	...	...	...		
74	Cerebral hæmorrhage, apoplexy etc	126	60	66	2	...	...	...	...	...	...	1	...	1	2	...	...			
	1. Cerebral hæmorrhage, so																					
	(a) } returned	93	44	49	2	...	...	...	...	...	...	1	...	1	2	...	...			
	2. Apoplexy, lesion unstated ...	8	6	2	...	...	...	...	...	...	...	...	...	...	...	...	...
	(b) } 1. Cerebral embolism	8	5	3	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. Cerebral thrombosis	17	5	12	...	...	...	...	...	...	...	...	...	...	...	...	...
75	Paralysis of unstated origin	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...
	(a) Hemiplegia	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	(b) Other forms of paralysis	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
76	General paralysis of the insane ...	9	7	2	...	...	...	...	...	...	...	...	...	...	...	...	...
77	Other forms of insanity	4	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...
78	Epilepsy	6	3	3	...	...	...	...	...	...	...	...	...	...	1	2	...
79	Convulsions (non-puerperal 5 years and over)	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...
80	Infantile Convulsions (under 5 years of age) ...	12	9	3	10	1	...	1	...	...	...	...	...	...	...	...	...
81	Chorea	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	
82	Hysteria and neuritis	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	(1) Hysteria and Neuralgia ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(2) Neuritis	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
83	Cerebral softening	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
84	Other diseases of the nervous system	10	3	7	...	...	...	...	...	...	...	...	...	...	3	...	...			
	(1) Idiocy, imbecility ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(2) Cerebral tumour	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	(3) Disseminated sclerosis	5	1	4	...	...	...	...	...	...	...	...	...	...	3	...	...			
	(4) Paralysis agitans	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	(5) Other diseases included under 84	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
85	Diseases of the eye and annexa ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
86	Diseases of the ear and of the mastoid sinus	5	4	1	...	...	1	...	...	1	...	1	...	...	...	...	...
	(1) Diseases of the mastoid sinus	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...
	(2) Diseases of the ear	4	3	1	...	...	1	...	...	1	...	...	...	...	...	...	...
	Total Diseases of the Nervous System and Sense Organs ...	205	106	99	16	1	2	1	...	4	...	2	4	...	6	4	...					
	Diseases of the Circulatory System.																					
87-90	Heart diseases	314	146	168	...	...	...	1	...	...	...	2	2	1	5	13	...
87	Pericarditis	2	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...
88	Acute endocarditis and myocarditis	17	5	12	...	...	...	1	...	...	...	2	2	...	3	1	...
	(1) Malignant endocarditis	11	5	6	...	...	...	...	...	...	...	1	2	...	2	1	...
	(2) Other acute endocarditis	3	...	3	...	...	...	...	...	...	...	1	...	...	1	...	...			
	(3) Acute myocarditis	3	...	3	...	...	...	1	...	...	...	...	...	...	...	...	...
89	Angina pectoris	27	19	8	...	...	...	...	...	...	...	...	...	...	...	3	...
90	Other diseases of the heart	268	120	148	...	...	...	...	...	...	...	...	...	...	1	2	8
	(1) Aortic valve disease	14	11	3	...	...	...	...	...	1	...	...	...	1	...	...	...		
	(2) Mitral valve disease	47	16	31	...	...	...	...	...	...	...	...	...	...	1	1	...
	(3) Aortic and mitral valve disease	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...
	(4) Other or unspecified valve disease	54	21	33	...	...	...	...	...	...	...	...	...	...	...	1	2
	(5) Fatty heart	16	4	12					
	(6) Cardiac dilatation, cause unspecified	2	1	1					

Continued.
TH, 1928.

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List No.	CAUSES OF DEATH.	Total	SEX.		AGE.													
			M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40		
90	Other diseases of the heart— <i>contd.</i>																	
	(7) Other or unspecified myocardial disease	122	61	61	...	...	...	...	...	...	...	...	...	...	...	...	3
	(8) Disordered action of the heart	6	4	2	...	...	...	...	...	...	...	...	...	...	...	...	1
	(9) Heart disease (undefined)...	3	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...
91	Diseases of the arteries	211	100	111	...	...	...	...	...	...	...	...	...	...	...	...	...
	(a) Aneurism	4	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...
	(b) Arterio-sclerosis	206	97	109	...	...	...	...	...	...	...	...	...	...	...	...	...
	(1) With record of cerebral vascular lesion	69	33	36	...	...	...	...	...	...	...	...	...	...	...	...	...
	(2) Without record of cerebral vascular lesion	137	64	73	...	...	...	...	...	...	...	...	...	...	...	...	...
	(c) Other diseases of the arteries	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
92	Embolism and thrombosis (not cerebral)	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
93	Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.) ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
94	Diseases of the lymphatic system (lymphangitis, etc.) ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	Hæmorrhage without stated cause ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
96	Other diseases of the circulatory system	4	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total Diseases of the Circulatory System	532	249	283	...	...	...	1	...	...	...	2	2	1	5	1	1
	Diseases of the Respiratory System.																	
97	Diseases of the nasal fossæ and annexa ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
98	Diseases of the larynx	2	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...
	(1) Laryngismus stridulus ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(2) Laryngitis	2	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...
	(3) Other diseases ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
99	Bronchitis	198	80	118	8	3	2	...	1	1	...	...	1	1	2	...	...
	(a) Acute... ..	45	18	27	4	3	1	...	1	1	...	...	...	...	1	...	...
	(b) Chronic	72	30	42	...	...	...	...	...	...	...	...	1	1	...	...	...
	(c) Not stated whether acute or chronic	81	32	49	4	...	1	...	...	...	...	...	...	...	...	1	...
100, 101	Pneumonia (all forms)	157	96	61	22	15	8	2	2	3	3	1	7	4	6	...	...
100	Broncho-pneumonia	91	52	39	20	15	7	1	2	2	1	...	1	1	1	...	...
101	Pneumonia (lobar and not otherwise defined)	66	44	22	2	...	1	1	...	1	2	1	6	3	5	...	...
	(a) Lobar	49	36	13	1	...	1	...	...	1	2	1	5	3	3	...	...
	(b) Not otherwise defined	17	8	9	1	...	...	1	...	...	...	...	1	...	2	...	...
102	Pleurisy	3	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...
	(1) Empyema ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(2) Other pleurisy	3	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...
103	Congestion and hæmorrhagic infarct of lung	4	2	2	1	...	...	...	...	...	...	...	...	1	...	...	...
104	Gangrene of the lung ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
105	Asthma	9	5	4	...	...	...	...	...	...	...	...	...	...	1	...	...
106	Pulmonary emphysema	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
107	Other diseases of the respiratory system	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(a) Chronic interstitial pneumonia	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(b) Diseases of the mediastinum ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	(c) Other diseases included under 107 ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total Diseases of the Respiratory System	376	188	188	31	18	10	2	3	6	3	1	8	6	9	7	1	

WARD.																								
6c 10 65	65 10 70	70 10 75	75 10 80	80 10 85	85 and upwards	0 5 10	5 and upwards	North	East	West	Tonge	Exchange	Bradford	Church	Great Lever	Dar Lever- c-Br hmet	Derby	Hulton	Deane-c- Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge
15	21	24	20	20	4	...	122	4	11	17	9	4	20	4	9	...	10	2	5	4	14	3	3	3
I	2	I	...	...	...	...	6	...	I	I	I	...	...	I	...	...	...	...	...	I	...	...	I	...
15	...	I	...	...	...	...	3	I	I	...	...	...	...	...	I	...	...	...	...	...	...	...	...	...
...	34	57	54	20	12	...	211	12	27	33	9	3	23	8	13	2	22	8	I	14	16	...	8	12
I	...	...	...	...	...	...	4	...	...	...	I	...	I	...	...	...	...	...	...	I	...	...	...	I
14	34	57	54	20	12	...	206	12	27	33	8	3	22	8	13	2	22	8	I	13	16	...	8	10
7	12	20	15	3	2	...	69	I	10	10	4	...	8	5	2	...	5	4	...	5	6	...	6	3
7	22	37	39	17	10	...	137	17	17	23	4	3	14	3	11	2	17	4	I	8	10	...	2	7
...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	I
...	...	...	I	...	...	...	2	...	...	...	...	...	...	...	I	...	...	...	...	...	...	...	I	...
...	...	...	...	...	...	...	I	...	...	I	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...
...
...	2	2	...	...	...	...	4	...	...	...	...	...	...	...	...	...	I	I	...	...	...	...	I	I
50	90	110	98	50	18	I	531	24	52	75	24	9	62	26	38	8	49	21	8	26	50	8	23	29
...
...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	I	...	I	...
...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	I	...	I	...
...
25	28	43	27	16	5	14	184	13	20	32	12	6	15	5	16	3	21	4	9	9	19	...	5	9
6	3	5	9	2	I	9	36	I	...	12	5	2	5	2	4	...	3	...	2	3	5	...	...	I
14	8	18	8	4	I	...	72	7	8	7	3	3	5	...	9	2	7	I	3	3	8	...	I	5
5	17	20	10	10	3	5	76	5	12	13	4	I	5	3	3	I	11	3	4	3	6	...	4	3
10	7	11	4	5	...	49	108	8	14	27	9	3	19	7	10	2	22	5	3	9	13	...	3	3
7	5	7	2	2	...	45	46	2	11	16	6	3	16	4	4	I	11	2	I	6	6	...	I	I
3	2	4	2	3	...	4	62	6	3	11	3	...	3	3	6	I	11	3	2	3	7	...	2	2
...	2	2	2	I	...	2	47	4	3	6	...	...	3	2	5	...	11	I	I	3	6	...	2	2
3	...	2	...	2	...	2	15	2	...	5	3	...	...	I	I	I	...	2	I	...	I	...	...	...
...	I	I	...	...	...	...	3	...	...	...	I	...	...	...	...	...	...	...	...	...	I	...	...	I
...
...	I	1	...	...	...	...	3	...	...	...	I	...	...	...	...	...	...	...	...	...	I	...	...	1
...
...	I	...	...	...	...	...	I	3	...	...	...	...	...	I	...	...	2	...	...	...	...	I	...	...
...
...	I	...	2	9	2	I	...	2	...	I	I	I	I
...	I	...	I
...
...
...
...
36	38	55	34	21	5	64	312	22	35	61	23	9	37	12	27	5	45	11	12	18	35	I	9	14

113, 114

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TH, 1928.

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										WARD.															
60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	0 to 5	5 and upwards	North	East	West	Tonge	Exchange	Bradford	Church	Great Lever	Dar. Lever c.Br'htmet	Derby	Hulton	Deane-c-Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley	Bridge
...	I	...	I	2	2	I	I	I	I
...	I	...	I	2	I	I	I	I
...
...
I	4	I	2	I	...	2	12	...	...	3	...	...	3	I	I	2	2	...	...	...	...	...	I	I
...	
...	I	...	...	...	...	I	I	...	I	..	...	...	...	...	...	...	...	I	...	...	...	...	...	...
...	I	...	...	...	...	I	I	...	I	...	...	...	...	...	...	...	...	I	...	...	...	...	...	...
...	
...	
...	I	...	...	...	...	I	I	...	I	...	...	...	...	...	...	...	...	I	...	...	...	...	...	...
...	
...	...	...	...	...	...	5	...	...	I	I	...	...	...	...	...	I	I	...	...	I	...	...	...	...
...	...	...	...	...	...	6	...	...	I	...	I	...	...	I	...	...	...	...	...	...	I	...	...	2
...	...	...	...	...	...	11	...	...	2	I	I	...	...	I	...	I	I	...	...	I	I	...	...	2
...	...	...	...	...	...	18	...	...	2	5	3	I	I	...	...	...	3	I	...	...	2	...	...	...
...	...	...	...	...	...	18	...	...	2	5	3	I	I	...	...	...	3	I	...	...	2	...	...	...
...	...	...	...	...	...	39	...	2	2	9	2	4	3	...	2	...	6	...	...	3	5	...	I	...
...	...	...	...	...	...	36	...	2	2	8	2	3	3	...	2	...	6	...	...	2	5	...	I	...
...	...	...	...	...	...	3	...	...	...	I	...	I	...	...	...	...	...	...	...	I	...	...	...	...
...	...	...	...	...	...	5	...	...	...	I	...	...	I	...	I	...	...	...	...	...	I	...	I	...
...	...	...	...	...	...	2	...	...	...	...	...	...	I	...	...	...	...	...	...	...	...	...	I	...
...	...	...	...	...	...	3	...	...	...	I	...	...	...	...	I	...	...	...	...	...	I	...	...	...
...	...	...	...	...	...	62	...	2	4	15	5	5	5	...	3	...	9	I	...	3	8	...	2	...
2 I	3 5	3 13	5 32	4 31	I II	...	18 93	...	3 3	2 13	2 8	1 5	I 6	I 4	...	3 4	2 9	...	I 5	2 7	
3	8	16	37	35	12	...	III	2	6	15	4	5	10	2	8	6	7	5	6	7	11	2	6	9	

[illegible]

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TABLE
CAUSES

..18..

List No.	CAUSES OF DEATH.	Total	SEX.				AGE.											
			M.	F.	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	
1-69	General Diseases	630	302	328	20	13	16	3	7	14	7	22	30	23	30	22	24	
70-86	Nervous System, etc.	205	106	99	16	1	2	1	...	4	...	2	4	...	6	4	11	
87-96	Circulatory System	532	249	283	...	...	...	1	...	...	...	2	2	1	5	13	11
97-107	Respiratory System	376	188	188	31	18	10	2	3	6	3	1	8	6	9	7	15	
108-127	Digestive System	141	77	64	20	3	3	...	...	4	1	3	2	4	6	4	4
128-142	Genito-urinary System, etc. (Non-puerperal)	115	70	45	1	1	...	...	...	...	1	2	2	1	2	2	7
143-150	The Puerperal State	8	...	8	...	...	...	...	...	...	...	...	3	...	1	1	8
151-154	Skin and Cellular Tissue	14	9	5	2	...	...	...	...	...	...	...	...	1	...	...	1
155-158	Locomotor System, etc.	2	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...
159	Malformations	11	6	5	11	...	...	...	...	...	...	...	...	...	...	...	...
160-163	Diseases of Early Infancy	62	35	27	62	...	...	...	...	...	...	...	...	...	...	...	...
164	Old Age	111	49	62	...	...	...	...	...	...	...	...	...	...	...	...	...
165-203	External Causes	110	82	28	3	4	1	2	2	6	6	2	6	5	2	10	...	
204-205	Ill-defined Diseases	6	6	...	1	1	...	1	...	...	...	...	...	...	...	...	...
	GRAND TOTAL	2323	1180	1143	167	41	32	11	12	34	18	34	57	41	61	63	...	

-Continued.
ATH, 1928.

..19..

										WARD															
55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 and upwards	to 5	5 and upwards	North	East	West	Tonge	Exchange	Bradford	Church	Great Lever	Dar. Lever c-Br hmet	Derby	Hulton	Deane-c- Lostock	Rumworth	Halliwell	Heaton	Smithills	Astley Bridge
71	65	72	51	27	13	1	59	571	27	35	94	47	12	73	28	44	11	64	22	10	26	64	11	29	33
25	26	23	28	20	6	1	20	185	8	7	26	17	2	28	9	18	4	18	7	6	6	23	7	7	12
44	50	90	110	98	50	18	1	531	24	52	75	24	9	62	26	38	8	49	21	8	26	50	8	23	29
26	36	38	55	34	21	5	64	312	22	35	61	23	9	37	12	27	5	45	11	12	18	35	1	9	14
21	13	16	6	8	3	...	26	115	8	8	24	12	4	15	4	9	6	13	5	2	6	15	3	5	2
7	14	16	10	14	2	4	2	113	9	4	16	9	1	13	11	7	3	8	1	2	10	7	...	8	6
...	...	...	...	...	...	...	...	8	1	...	2	...	...	...	1	...	...	1	...	...	3	...	...	...	...
...	1	4	1	2	1	...	2	12	...	...	3	...	...	3	1	1	2	2	...	...	...	...	...	1	1
...	...	1	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
...	...	...	...	...	...	...	11	...	...	2	1	1	...	...	1	...	1	1	...	...	1	1	...	...	2
...	...	...	...	...	...	...	62	...	2	4	15	5	5	5	...	3	...	9	1	...	3	8	...	2	...
...	3	8	16	37	35	12	...	111	2	6	15	4	5	10	2	8	6	7	5	6	7	11	2	6	9
8	11	2	4	7	3	...	12	98	4	8	12	10	2	12	3	8	5	11	3	4	4	13	1	7	3
1	...	1	...	...	...	...	3	3	...	...	...	...	...	1	...	1	1	1	...	...	...	1	...	1	...
...	219	271	281	247	134	41	263	2060	107	162	344	152	49	259	98	164	52	229	77	50	110	228	33	98	111



